

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 86.

NEW YORK, SATURDAY, MAY 27, 1905.

No. 21.

ORIGINAL ARTICLES.

CLINICAL FEATURES AND TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS.¹

BY FRANCIS HUBER, M.D.,
OF NEW YORK.

IN accepting the kind invitation of your chairman to read a paper on cerebrospinal meningitis, an honor duly appreciated and acknowledged with thanks, the writer is well aware that but little has been added to our knowledge, of many important features, though we have had ample opportunities to study the various clinical manifestations of the disease. In the opinion of numerous excellent observers, the germ is taken into the nasal passages and thence gains access to the cranial cavity through the lymph and blood circulation at the base of the brain and particularly the cribriform plate of the ethmoid bone. Acting on this theory the intranasal use of germicides has been suggested.²

A simple saturated solution of boric acid, sprayed into the nasal passages twice a day, the throat being treated with the same solution, is thought to be sufficient, so far as concerns means that may safely be put in the hands of the public.

There is nothing new in this. Jacobi³ says: "The modern progress of our acquaintance with the etiology of infectious diseases adds to our preventive, not yet to our curative powers." "The nasal secretion in which the diplococcus is of frequent occurrence, requires particular attention." In "Some Preventives"⁴ the importance of nasal injections to prevent the invasions of diphtheria, tuberculosis and occasionally meningitis is discussed in a masterly way.

With a general mortality of about 65 to 70 per cent. (the largest number of the fatal cases occurring in the first week) the main problem is one of prevention rather than cure. To limit the prevalence of the disease is the problem the Health Department must face. As has been well said, "its efforts should be supplemented by all possible care on part of individuals, as is always the case in matters of sanitation" and the health authorities we must look for the improved conditions tending to prevent the occurrence of the disease in an epidemic form. It is to be sincerely hoped, that the commission lately appointed will succeed in unveiling many obscure problems and possibly diminish the mortality or rather limit or prevent the outbreak and spread of the disease.

"Councilman" urges a careful study of the

sporadic instances. He believes that "The presence of these sporadic cases is of importance in the occurrence of the epidemics. The *Diplococcus intracellularis* is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of the intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane."

In the absence of positive knowledge, it is assumed that at certain times the power of infection is increased by an increase in the virulence of the diplococcus or a decrease in the resistance of the tissues. A complete and interesting historical review of the different epidemics which have appeared in the United States was presented by Jacobi in a paper read before the German Medical Society April 3, 1905.

The general belief is that the specific poison is not transmitted by contact from person to person. The danger (of direct contact) has been considered slight; recent observations have somewhat altered this opinion. The unusually large percentage of cases (about one in ten), in which two or more were affected in the same family (not necessarily at the same time), the occurrences of multiple instances in the same house, its appearance in the better sections and the transmission of the infection to the nurses and physician in attendance, led to the strong suspicion that under favorable conditions the malady is directly communicable. Two cases of ward infection in children are known to the author. To be on the safe side, it is well to discourage visits on the part of relatives and friends.

A number of isolated cases crop up at different points. The germs appear to act in a peculiar manner and apparently show an "elective affinity" for certain localities or individuals in many instances. It is impossible to trace any connection between successive cases.

The experience at Beth Israel Hospital may throw some light upon this phase of the subject. Upon three different occasions within the past two months cases were admitted, the patients, natives of Russia, having been in the country but two and five days and two weeks respectively. Last spring, in Gouverneur Hospital, a fine-built man recently arrived from Ireland, died of the malignant type. Lately the spread of the disease has been attributed to the flea.

The disease is more common in the crowded districts, where sanitary and hygienic conditions are sadly neglected. During the severe cold weather of the past season, the dwellers in the

¹ Read at the meeting of the New York State Medical Association (New York County), April 17, 1905.

² New York Medical Journal, March 25, 1905, p. 602.

³ Therapeutics of Infancy and Childhood, p. 195.

⁴ Philadelphia Medical Journal, December 10, 17, 24, 1898.

⁵ New York Medical Journal, March 25, 1905, p. 602.

⁶ Journal American Medical Association, April 1, 1905.

tenements were closely housed. In many of the rooms the sunlight never penetrated, the air was stifling and impure. Atmospheric conditions must be considered. Following each thaw in the past few months, an increase or new crop of cases was noted.

A number of the children affected under more favorable surroundings, presented evidences, more or less marked, of nasopharyngeal obstructions and mouth-breathing.

Nasal catarrh, conjunctivitis, as also bronchitis, were observed in approximately one-quarter of the cases. Otitis was less common. As these conditions are of frequent occurrence in the lower districts it is impossible, in the absence of cultures, to say to what extent the meningococcus was responsible.

One attack probably confers immunity. Councilman could only find the reports of five cases in which the disease presented itself twice in the same patient.

TABLE OF 112 CASES.

Age.	Under 1 year.	1 to 2 years.	2 to 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	Over 20 years.	Total.
Male	7	5	11	13	5	7	8	56
Female	7	10	12	12	7	4	1	56
Recovered		4	3	3	6	4	3	28
Improved			3	1	1	1		5
Unimproved	4			1				5
Died	10	11	17	18	6	6	6	74

Oldest patient, man, forty-eight years; fatal.

For the above table of 112 cases of cerebrospinal meningitis treated at Gouverneur Hospital in 1904, the author is indebted and takes this opportunity to express thanks to Dr. P. W. Monroe, late house physician. (All doubtful cases were excluded).

In reviewing the above, we find that males and females were equally represented. Seventy-four patients died, 28 cured; 5 discharged improved and 5 unimproved.

Under one year there were 14 cases, or 12½ per cent. of the entire number admitted. Under five years of age we find 53 cases, comprising 46½ per cent. of the entire number admitted. Under ten years of age we find 80 cases, comprising 71 per cent. of the entire number admitted. Under fifteen years of age we find admitted. There were 23 cases between 2½ to five years of age, and 28 between ages of five and ten years. The largest group, therefore, was between ages of five and ten years, the next between two and five years. Recoveries, 28; 14 recovered within three weeks after having taken sick. Of this number 10 were well in two weeks or less; one was well on the seventeenth day; three were well in about three weeks. Of the remaining 14, 4 recovered in four weeks, 1 in two months, 3 in six weeks, 3 in three months, 2 in seven weeks, 1 in two months.

Symptomatology.—Latimer claims "that the psychical phenomena are most apparent in those cases in which the cortex is most implicated, the special sense disturbances where the base is most involved and the muscular and general sensory manifestations when the spine is invaded." No

II.—TABLE OF 74 DEATHS IN A SERIES OF 112 CASES—FROM 1 TO 230 DAYS.

Day of death.	No. of cases.	Day of death.	No. of cases.
1st	2	29th	1
2d	6	32d	1
3d	6	36th	1
4th	4	39th	1
5th	8 ¹	42d	1
6th	3	45th	1
7th	3 ¹	46th	1
8th	1	47th	1
9th	2	49th	1
11th	3	50th	1
12th	4	56th	1
13th	1	58th	1
14th	4	69th	1
15th	3	119th	1
17th	1	124th	1
19th	2	141st	1
20th	1	209th	1
23d	2 ¹	230th	1
	56		18

¹ Twenty-six cases or 23.2 per cent. of patients admitted, comprising 35 per cent. of the fatal cases or 46 per cent. of those dying in first twenty-three days.

² Thirty-two cases, or 28.6 per cent. of admissions, forming 43.5 per cent. of the fatal cases or 57 per cent. of those dying in first twenty-three days.

³ Representing 50 per cent. of admissions, or 75.7 per cent. of the fatal cases.

In the series of 74 deaths, 56 occurred during the first 23 days. The remaining 18 in from 29 to 230 days. Twenty-six died during the first 5 days, equalling 23.2 per cent. of admissions, and 35 per cent. of the fatal cases. Thirty-two died during the first week, equalling 28.6 per cent. of admissions, and 43.5 per cent. of the fatal cases. Fifty-six died during the first 23 days, equalling 50 per cent. of admissions, and 75 per cent. of the fatal cases.

such sharply defined clinical states were observed in practice.

In a general way, it may be stated, in the early stages, "the symptoms are those of exaggerated nerve sensibility, pain, general hyperesthesia, photophobia, aversion to sound, irregular and forcible muscular contractions, restlessness, delirium, perhaps convulsions, followed by indifference to light, disappearance of a pain, the pupils become dilated, and apathy even coma, may set in. Intense prostration, somnolence, apathy and coma are present, the direct result of the infection at a very early period, within a few hours of the invasion.

Patients coming under observation within eight, twelve to fifteen hours show marked prostration, general muscular relaxation, ashy pallor, eyes somewhat sunken, pupils contracted, very rapid feeble pulse and a cold clammy skin. The internal temperature is low, moderately elevated or high. A greater or less degree of apathy and somnolence is observed, or coma more or less profound may exist. Some are quiet, others extremely restless and excited or delirious. Chills, headache and vomiting (in children, convulsions, localized or general, or an algid state), occur as a rule.

On the other hand, the signs of the invasion may be mild. There may be a little apathy or moderate implication of the mental faculties. Vomiting is noted once or twice. There is more or less headache and some little pain or stiffness of the neck. The temperature is somewhat above the normal.

In the exceptional cases in which there is a so-called prodromal period of one or two days, careful examinations (as in several cases observed lately) show an acute invasion, with mild manifestations, the signs becoming pronounced within thirty-six to forty-eight hours.

Between these two extremes all degrees are found. The distinctive features, however, are the sudden onset, in many the exact hour was given, more or less mental involvement, pain and rigidity of the muscles of the back of the neck, vomiting and headache.

The subsequent course may be extremely irregular, though headache, rigidity of the neck, retraction of head, the characteristic position and facies, somnolence or coma, irregular temperature and Kernig's sign are common factors. Other distinctive manifestations will be discussed later.

In the infant the retraction is frequently not noticed until several days have elapsed, though the persistent vomiting, somnolence, high temperature, irritability and convulsions should put us on our guard.

In reviewing the series it is difficult to classify a number of cases, running a very irregular course. In the absence of a better, Osler's subdivision may be employed. Three forms are described: (1) The malignant; (2) ordinary; (3) anomalous forms, (a) abortive, (b) intermittent, (c) chronic form.

The *fulminant* type begins suddenly with profound toxic symptoms; a generalized purpuric eruption is usually present. The course is rapidly fatal in from a few hours to several days. In one of our patients with hyperpyrexia the temperature reached 109° F. In the most rapid case in our series death occurred in fifteen hours.

In the *mild or aborted* cases the onset may be stormy or otherwise, the symptoms gradually improve, and the patient is convalescent within a week or two. Such patients should be carefully watched and warned, as a relapse may take place subsequently, within a fortnight; in others running a longer course of two to four weeks, the mental state clears up, the retraction and rigidity gradually disappear and the temperature and pulse become normal. It is very difficult to keep these patients quiet in bed; they will sit up in spite of everything.

The *intermittent* type is quite frequent. Its characteristic features are, exacerbations of fever recurring daily or every other day, or the curve is of an intermittent or remittent character.

A number of cases become chronic. The prolonged course, extending over a period of months, depends upon brain abscesses or chronic hydro-

cephalus. The patients sink into a condition of marasmus with extreme retraction of the abdomen. In chronic hydrocephalus the history is interrupted by temporary periods of improvement in the mental state and general symptoms and is about as follows: We find progressive emaciation sometimes quite rapid, irregular temperature, becoming subnormal for days or weeks, alternating apathy and even coma, paroxysmal vomiting, incontinence of urine and feces during the relapse, now and then convulsions, marked retraction of the abdomen, periodic headache, dilated pupils and occasional delirium. In infants the head assumes the characteristic shape. Coma, convulsions or exhaustion lead to a fatal ending after two to eight months and longer suffering.

Headache occurs with different degrees of severity, occasionally so intense as to give rise to shrieks even in the comatose stage.

The pain may be frontal, parietal, at the base or general, or it may extend to the neck and back. Later on the paroxysmal headache is usually to be attributed to chronic hydrocephalus. In some the pain persists for years. Neuralgic pains may occur along the various spinal nerves in others. Severe abdominal pains are met with in children.

General convulsions were of common occurrence in the young at the onset, or later on in severe or fatal cases. Localized convulsive seizures were noticed in the facial muscles, less frequently one extremity or one-half of the body was involved. The difficulty in deglutition of short duration, disappearing in thirty-six to forty-eight hours, was probably due to muscular paresis. Strabismus, ptosis and loss of power of the sphincters of the bladder and rectum with incontinence of urine and feces, were frequent. Monoplegia and hemiplegia have been observed. The monoplegia was of a transient character, even a hemiplegia of several months' duration may disappear. Muscular tremors, rhythmical in character, general or limited, and frequently involving the tongue, were of common occurrence.

Joint pains without much swelling were seen in a few instances. In one case of endocarditis, with a history of painful joints, the mode of death by respiratory failure induced Dr. J. H. Bailey to do a post-mortem lumbar puncture. The turbid fluid was found to contain the pneumococcus in pure culture. The spine, particularly in the cervical portion, may be very sensitive on pressure. Pressure over the occipital region and along the spine is attended by more or less acute pains even in the chronic stage. Any attempt to move the contracted muscles in the acute stage occasioned great suffering. Kernig's sign was present in nearly all our cases some time or other. Pain and restlessness were increased when the test was applied early. Vomiting more or less severe occurs early. Later on it is of grave import, as it may be one of the evidences of severe intracranial changes or a symptom of hydrocephalus, constituting a distressing and dangerous symptom. In the malignant type, blood

appears frequently in the vomited matter. In one case that recovered, a fair amount of grumous material was brought up. Chills in the adult or chilly feelings in childhood are frequent at the beginning and in many instances recur during the subsequent course of the disease, particularly in the intermittent forms.

Rigidity and retraction of the head (in mild cases, the forward movement only being restricted) are characteristic. In infants several days may elapse before the symptoms appear. In the severe cases the vertebral muscles are involved, causing orthotonos more commonly than opisthotonos. Trismus is rare. The rigidity and retraction give rise to the characteristic portions; the head is drawn back, the thighs and legs are flexed and the spine is arched forward to a greater or less extent. In the favorable cases the rigidity and contraction gradually grow less and less, and, according to the character of the infection, disappear within one or two weeks. In others the symptom complex may last for two to four or six weeks. In the chronic type it persists for months, at times improving with the improvement in the general symptoms and then relapsing.

Hyperesthesia adds to the suffering. The least touch, any attempt to examine or to perform the necessary services, causes the patient to cry and resist. Many of the older children rest quietly as long as they are not disturbed. In the subacute stage they are contented, and when asked "How do you feel?" would answer, "I am better" or "I feel well," though the temperature was still elevated and the general symptoms were marked.

In the acute stage, the mental condition varies in the different patients. During the stage of prostration, the patients can be aroused, but with difficulty. In some there is apathy, somnolence, stupor or coma. Now and then there is a slight improvement, followed by a relapse; in others the coma persists until death. At times consciousness is regained in a few hours or it may not be for several days and even in weeks or months. In the subacute and chronic stages, the periods of improvement may be followed by a setback. Restlessness, sleeplessness, muscular tremors and delirium occur early or late.

The temperature does not follow any regular course. Remissions and recrudescences are frequent, the curve is irregular and variable. There may be little or no elevation, with marked retraction and other evidences of cerebral and spinal involvement. No prognostic value can be attached to sudden drops; a fall of 7, 8 and even 9° F. occurred in cases which eventually recovered. In other instance, a sudden rise of 6 or 7° was noted. The pulse in our experience in children has usually been rapid; in adults it may be full and strong at first, often, however, it is increased in frequency. The chief characteristic is its irregularity; it may be rapid and feeble, or slow and intermittent. Marked varia-

tions in frequency during the different times in the day and on consecutive days were observed.

No characteristic respiratory difficulty occurs. The respiration may be irregular, sighing or of the Cheyne-Stokes type; in convulsions and coma the peculiarities belonging to these states are present. General cyanosis is often observed. Now and then pulmonary edema supervenes. In many of the fatal cases death was due to paralysis of respiration. The respirations would become slow, perhaps as low as three per minute, and then stop, the heart continuing to act a short time longer.

The tongue, teeth and lips were covered with sordes in a fair proportion of cases. Usually there was a heavy coating, which gradually disappeared, leaving a red raw surface. In a very small number there was a light fur. Considerable difficulty in deglutition was met with in many early in the disease. The trouble was readily overcome by gavage resorted to a few times. Muscular tremors of tongue and mouth were of frequent occurrence.

Retention of urine was a frequent complication in the early stages. Constipation was the rule. Incontinence of urine and feces was a common feature during the stage of coma and in the relapse.

Urinary examinations were made in many cases. Traces of albumin, disappearing in a few days, and occasional casts were discovered in many specimens. Hematuria, followed by suppression, was met with a few times in the malignant form. Aside from the increased leucocytosis, the blood did not show any positive changes. With improved technic several observers report finding the diplococcus in the circulation in many instances. A leucocyte count of 40,000 was found on the first day in several instances. The number varied from 15,000 to 30,000 or 35,000.

A history of spots was obtained in a number of patients admitted late. Petechiae were observed in one out of every four cases which came into the hospital early, the eruption appearing within four to twelve or fifteen hours, and fading within three or four days. Petechiae were occasionally present upon the conjunctiva; at other times larger areas of conjunctival redness were noticed, not associated with conjunctivitis or any swelling.

In some of the fulminant type there was increasing cyanosis; large purpuric spots and hemorrhagic extravasations, or large irregular spots (resembling port wine marks), appeared upon the back and limbs. Hemorrhages from the mucous membrane occurred in the malignant type.

The rash was quite profuse in some that recovered, and absent in many of the severe and fatal cases. Some of the children presented parallel hemorrhagic streaks upon the abdomen and chest, due to scratching. A diffuse mottling of extremities, ears, etc., disappearing in a few

hours, was common in the early stages; later on, the appearance was of grave prognostic import. In the first twenty-four hours the face was of a pallid hue, the eyes sunken, and the surface generally cold. Cyanosis of a transient character was noted at irregular times during the progress of the chronic type.

Transitory irregular patches of erythema upon the face, forehead or ears were frequent. The tache cerebrale was seen early and persisted. Numerous minute red spots (resembling the eruption of scarlet), particularly well marked in restless subjects, were seen every now and then over the elbows, knees, trochanters and shoulders. Roseola, erythema nodosum and urticaria were infrequent occurrences.

No particular difficulty was experienced in distinguishing the drug eruptions due to the bromides or the coal-tar products.

A tendency to hemorrhages in the skin upon slight trauma, or at points of irritation was frequent. Strangely, however, no bad result attends the giving of subcutaneous injections of salt solution in these cases. In several prolonged cases purpuric spots occurred late in the disease. In Willie G. we found them on the sixty-first and again on the seventy-first day. In others they persisted until death.

Herpes (once supposed to justify a favorable prognosis) were encountered more frequently than petechiae, and were present in about one-quarter of the cases. They occurred about the third or fourth day, or later, and appeared upon the lips, alae nasi, around and about the ears and cheeks, now and then in successive crops. In some of the chronic cases deep scars remained. The eruption was noticed upon the sternum in one case, in another upon the forehead, and again in the intercostal region, once along the outer aspect of the thigh. Several times the distal phalanges were the seat of a herpetic or bullous eruption. Urticaria, roseola and fairly large blebs on the finger tips and body generally were observed occasionally. Once a diffuse erythema was seen persisting for hours, closely simulating scarlet fever.

Ear complications were frequently overlooked in consequence of the severe constitutional disturbances. On several occasions a seropurulent or purulent flow occurred rather unexpectedly. Complete deafness due to disease of the internal ear remained in a small percentage.

Photophobia and contracted pupils, present in the beginning, were followed by dilatation and absence or slowing of the reflex later. Inequality of the pupils, hyppus or feeble response were observed in others. Nystagmus was seen now and then, strabismus and ptosis in others.

To Dr. Martin Cohen, who kindly examined a number of cases with the ophthalmoscope, I am indebted for the accompanying table. The malconditions found are arranged alphabetically, with the number of cases and uni- or bilateral character of the affection:

Name of Affection.	Uni- or Bilateral.	Number of Cases.
Contracted retinal arteries.....	Bil.	2
Contracted pupils.....	Bil.	4
Corneal ulcer.....	Bil.	1
Dilated pupils.....	Bil.	10
Catarrhal conjunctivitis.....	Bil.	5
Haziness of vitreous.....	Bil.	1
Irido-choroiditis.....	Unil.	1
Iritis.....	Unil.	1
Neuro-retinitis.....	Bil.	13
Nystagmus (lateral).....	Bil.	1
Optic atrophy (partial).....	Bil.	2
Ptosis.....	Unil.	1
Reactions (papillary) absent....	Bil.	14
Retinitis hemorrhagica.....	Bil.	1
Strabismus } conv.....	Bil.	3
} div.....	Unil.	1
Veins in retina dilated and tortuous.....	Bil.	5

Sequelae.—The following have been observed: Chronic hydrocephalus, meningo-encephalitis and secondary contractions, hemiplegia, persistent headaches, blindness, deafness, idiocy, neurasthenic conditions, persistent neuralgia in various portions of the body, and mental changes of different degrees.

Mode of Death.—In the first week, toxemia, cardiac or respiratory failure, convulsions, coma and in the latter stages exhaustion, respiratory failure, sepsis from bed sores or trophic ulcerations, incessant vomiting and coma or convulsions led to a fatal termination.

In *American Medicine*, April 1, 1905, Stockton reviews the treatment of the disease. As those of us who see large numbers of cases have already done, he confesses that the sanitarian is more useful than the therapist. The various approved methods suggested in different epidemics are discussed in a brief and lucid résumé. "When we recollect the difference in virulence in different epidemics, it is easy to understand how faulty notions as to the effects of measures or treatment may gain credence."

In considering the treatment in detail and estimating the value of any plan, certain factors must not be lost sight of: (a) The large proportion of malignant cases, (b) the grave character of the anatomical changes, and finally the great irregularity in the clinical course.

It is possible to predict the subsequent progress from the initial symptoms. A mild onset may be followed by severe and grave symptoms. On the other hand, a stormy invasion, in a few fortunate instances, may be succeeded by a rapid decline of symptoms and an uneventful convalescence.

An apparent convalescence is frequently interrupted by an unexpected recrudescence or relapse. Severe and apparently grave manifestations may be cleared up unexpectedly.

In the absence of a specific remedy or antitoxin (which would have to be employed early), the treatment is a general one.

To secure the necessary rest of mind and body,

aside from the possible danger to others, in private practice, the case ought to be isolated and placed in charge of a good nurse in a well ventilated room. The room need not necessarily be kept dark—a bandage over the eyes serves the same purpose.

The general nutrition must be sustained by an appropriate fluid diet; an ice bag to the head, with proper support to head and neck, will add to the patient's comfort; raising the head of the bed six to eight inches appears to afford relief. Plenty of water is to be given and the body functions in general regulated. The urine may require to be drawn off during the early stages. The ordinary rules applicable to a severe febrile condition must be observed. The nasopharynx, frequently the seat of catarrhal conditions, ought not to be neglected.

Warm salt solutions six-tenths of one per cent., slowly poured into the nares by means of a spoon, improves the breathing and in a measure prevents the tongue and mouth from becoming dry and parched. During the early stage, when swallowing is difficult because of a paretic condition of the pharyngeal muscles, and later on in chronic cases, forced feeding through the nose or mouth may be indicated.

Pain and restlessness must be relieved by codeine or morphine per os or hypodermically. Phenacetin, with or without codeine, relieves the headache, etc. Bromides have been recommended for the same purpose. They, however, disturb the stomach and give rise to a fetid breath.

Ergot in the beginning has been greatly praised. Severe vomiting in the later stages is relieved by lumbar puncture, small hypodermics of morphine, ice to epigastric region and careful dieting. Sodium benzoate or caffeine in appropriate doses subcutaneously, affords prompt relief in cases in which pulmonary edema occurs. Adrenalin is of value in this state.

Packs or baths (90°, 95° or 98° F.), with or without mustard, relieve the irritability, improve the general circulation and frequently promote a quiet sleep. They lessen the muscular spasm and rigidity in general.

The method of Aufrecht, initiated in 1894, has been extravagantly lauded. M. Rogansky published remarkable results, claiming 66 per cent. recoveries. Hot baths at 104° F. (an ice-bag being applied to the head), were administered for fifteen to twenty minutes once or twice a day.

It is claimed that they restore consciousness, calm the delirium and restlessness, and relieve the pain. The temperature, vomiting or rigidity was not affected to any extent. The method is worthy of a trial.

"Lumbar puncture is not a procedure for the careless or the novice. It demands skill, cleanliness and judgment" (Elsner). In our hospital practice, the clinician is materially aided by the bacteriologist.

In fifty-one cases occurring during one term of service the diplococcus was formed in forty-four. One patient, an Italian not familiar with English, struggled so that it was impossible to proceed; in four others the puncture was made very late.

In one of this year's cases pneumococci were found. In another, an infant, suspected to be syphilitic, polynuclear leucocytes were found in the fluid; later on, however, the diplococcus was detected.

The organism has been detected in smears as early as twelve hours from the onset. In the centrifuged specimen, as late as the thirty-seventh to forty-fifth and forty-eighth day. Cultures have revealed its presence much later.

Lumbar puncture, apart from its diagnostic value, relieves the intracranial pressure to a certain extent. It is necessary to repeat the procedure at intervals, particularly in chronic cases. Lumbar puncture, with injections of various antiseptics, has not yielded very brilliant results.

Each case presents its individual indications. The strength of the patient must be maintained by appropriate nourishment and skilful nursing. Nourishment and nursing are of the utmost importance, particularly in the protracted cases. The use of Credé or mercurial ointment along the spine has not met with any appreciable success. In the typhoid state alcohol is indicated and well tolerated. In chronic hydrocephalus K.I. internally in small doses and lumbar puncture may prolong life. Surgical interference may possibly give better results in appropriate cases.

The iodides are indicated with a view of causing the absorption of plastic exudates. Hypodermoclysis given early to overcome the prostration and initial shock, to dilute the toxins, later on to supply fluids to the tissues, has been of considerable value.

Local bleeding by leeches had been resorted to in a large number before admission to the hospital, without appreciable benefit.

In view of the interest excited by the antitoxin treatment a few remarks may be in place:

"That branch of bacteriology which deals with the mutual antagonistic relations of pathogenic germs is still in its infancy. The facts already discovered suggest important developments in the future. To what extent clinicians will be able to utilize these antagonisms in the treatment of diseases it is difficult to foretell." In the editorial (MEDICAL NEWS, March 4, 1905, p. 409), from which the above extract is made, Coley's work with the toxins of the *Bacillus erysipelatos* and *Bacillus prodigiosus* in the treatment of inoperable sarcoma is instanced. It is also stated that Metchnikoff's important data have not yet received practical applications. He has shown that the *Bacillus mesentericus*, the *Bacillus subtilis* and the bacillus of symptomatic anthrax weaken the toxins of the tetanus bacil-

lus. The bacillus of Eberth destroys the toxins of diphtheria.

A further contribution to the subject, and one which introduced Dr. E. Waitzfelder and other clinicians to resort to diphtheria antitoxin in treating cerebrospinal meningitis was made by Dr. A. J. Wolff, of Hartford. He found that there is a decided antagonism between the Klebs-Löffler bacillus and the meningococcus, and during the course of the study on this portion of the investigation found that pure cultures of the meningococcus were killed by antidiphtheritic serum, and not only precipitated when mixed with the latter, but active bouillon cultures, when mixed in bulk with the antitoxin, are precipitated in the same manner.

The results obtained at Roosevelt Hospital, in the services of Drs. Peabody and Jacobi, have not tended to confirm the enthusiastic reports of the beneficial effects observed at Gouverneur Hospital. After a careful trial the procedure did not impress those who had studied the cases as influencing the disease to any degree. The intraspinal use of the remedy did not yield any better results. The latter method was tried in the children's service at Beth Israel Hospital and given up because of the negative results.

An interesting observation bearing upon the subject is the following: A little girl three years and nine months of age, previously healthy, in good physical condition, was given an immunizing dose of 2,000 units at 2 P.M. (a suspected case of tonsillar diphtheria having occurred in the family). The next morning at 10 A.M. she was suddenly taken ill, became rigid, lost consciousness and vomited a number of times. When seen in consultation at 4 P.M. she was in deep coma, pulse imperceptible, deeply cyanosed, with numerous petechiae over body, large quantities of grumous material were vomited. Tarry stools occurred. The profound coma and pronounced evidences of pulmonary edema made the prognosis absolutely bad; death occurred at 8 P.M. In this case of malignant cerebrospinal fever, notwithstanding the fact that the antitoxin had been given twenty hours before any symptoms were noticed, the subsequent downward course was rapid. No untoward results followed the administration of a much larger dose in the other child with the infected throat.

The Natural Immunity of Young Children.—A study of the normal resistance to infectious disease observed in children during the first few years of life was made by A. SCHÜTZ (*Jahrb. f. Kinderheilk.*, March 1, 1905), with the following results: The property possessed by the gastric juice of destroying diphtheria-toxin, varies with different nurslings, and is independent of age, feeding, or state of nutrition. Woman's milk possesses no noteworthy antitoxic action against diphtheria toxin. The gastric juice loses, in boiling, its antitoxic efficiency. An increased acidity of the gastric contents diminishes its antitoxic power. Apart from congenital immunity, the natural immunity of the child is chiefly expressed in the alimentary canal, and is independent of the form of feeding.

INFANTILE TUBERCULOSIS: ITS PORTAL OF ENTRY, TOPOGRAPHY AND CLINICAL MANIFESTATIONS.*

BY ROWLAND GODFREY FREEMAN, M.D.,

OF NEW YORK;
LECTURER ON PEDIATRICS, UNIVERSITY, AND BELLEVUE HOSPITAL
MEDICAL SCHOOL; ATTENDING PHYSICIAN FOUNDLING HOSPITAL;
NURSEY AND CHILD'S HOSPITAL; THE SEASIDE HOSPITAL
OF ST. JOHN'S GUILD, NEW YORK.

THE characters of tuberculosis differ with the different periods of life, and during the early period it is a disease to which the organism offers less resistance than in later life, and it manifests itself by a widely distributed general infection, the symptoms elicited depending on the organs infected.

Tuberculosis in young children is fairly common; thus, in 1,448 successive autopsies at the Foundling and Nursery and Child's hospitals of New York, on children for the most part under three years of age, 158, or nearly 11 per cent., showed tuberculous lesions. This is a much lower percentage than is noted by others. Thus Albu quoted by Raczyński in 11,000 autopsies on children found 19 per cent. tuberculous.

Raczyński,¹ of Krakau, analyzed 3,341 autopsies at the St. Ludwig's Children's Hospital and found that 611 cases, or 18.3 per cent., were tuberculous. These statistics, however, included older children. If we consider in Raczyński's statistics only the 1,452 autopsies on children under two years of age, we find 197 tuberculous cases, or only 13 per cent. The largest percentage of tuberculosis in his cases being between the ages of five and eight years, when it reached 27½ per cent.

The Portal of Entry.—The point of infection in most cases is a subject on which the widest difference of opinion exists among the highest authorities and between the position taken by Koch² that intestinal infection from cow's milk is extraordinarily rare, and that of Von Behring³ that the larger proportion of infections are intestinal, we must seek the truth for ourselves.

The assumption that tubercle bacilli most often gain access to the human body by the respiratory tract seems well founded. It has been demonstrated by experiment that many bacteria gain access to our air passages by the inhalation of dust-laden air, and also that the expired air contains no bacteria, that is, all the bacteria carried into the air passages by dust find lodgment on the mucous membrane. The effective mechanism of the human body for expelling bacteria from the air passages,—the ciliated epithelial cells and phagocytes—is able to remove and destroy most of these bacteria, but they may penetrate the normal wall of the air passages or an inflammation or abrasion of the mucous membrane in any part may offer a further opportunity for the invasion of the human organism by some germ. The point of this invasion depends on the point of lodgment of the bacteria and the point of penetration or of inflammation or abrasion of the mucous membrane.

* Read before the New York Academy of Medicine.

It is still a question to what extent the tonsil is ordinarily a portal of entry of the tubercle bacillus, but, however, the bacilli enter, the lymph nodes of the neck may be safely considered as frequently the first lesion noted after the third year, and tuberculosis of these lymph nodes often exists where there is no evidence of other tuberculous lesions.

The importance of tuberculous bronchial lymph nodes as pointing toward infection through the respiratory tract has been well emphasized by Dr. Northrup, and they certainly form the most common tuberculous lesion found at autopsy. They are, however, usually associated with tuberculous lesions elsewhere, most often in the lungs, often with abdominal lesions, occasionally with involvement of the cervical lymph nodes. The frequency, then, of tuberculosis obtained by inhalation is apparently well established. Whether tuberculosis due to the ingestion of food containing the *Bacillus tuberculosis* is frequent, is a matter concerning which there is the greatest diversity of opinion, even among those with considerable experience at the autopsy table.

No one in New York, so far as I know, believes he has seen many cases of tuberculosis at autopsy evidently due to intestinal infection. Northrup, in his very considerable experience, noted but one such case. Dr. Hodenpyl⁴ has reported one case, Boviard and Nicoll have seen four. I have shown three cases and another case has occurred recently at the New York Foundling Hospital. In 336 autopsies on tuberculous cases at Freiburg, as reported by Schmidt,⁵ six showed primary infection of the mesenteric lymph nodes. On the other hand, certain eminent observers in Europe report an entirely different experience. Guthrie⁶ in 77 autopsies on tuberculous cases at the Children's Hospital, Paddington, London, found 22 per cent. of the cases of intestinal origin. Still,⁷ of the Great Ormond St. Hospital for Children, London, in 269 autopsies on tuberculous children under twelve years of age, considered 23.4 per cent. of the cases of intestinal origin. Heller,⁸ of Kiel, in 714 autopsies on children that died from diphtheria found tuberculous lesions in 140, of which 53 or 38.8 per cent., were primary intestinal tuberculosis. Wagener⁹ in 76 autopsies on tuberculous children under fifteen years of age, found primary intestinal and mesenteric lymph node tuberculosis with demonstration of the bacilli in 17 per cent. of these lesions, without finding the bacilli in 21 per cent. Heller and Wagener call attention to the fact that these tuberculous lesions of the intestines are often very small and that unless the intestine is examined without separation from the mesentery they are apt to be overlooked.

Cohnheim and Aufrecht believe that cases of intestinal infection are not rare. Sims Woodhead,¹⁰ Professor of Pathology at Cambridge, England, who has had a very large experience,

relates that he has noted in making autopsies, children that have died from some other disease, with tuberculous mesenteric lymph nodes and not a trace of tuberculosis elsewhere. He has seen a large number of cases where the infection seemed to be from the intestine. Although it is possible that tuberculosis of intestinal origin may be more common in England and Germany than in this country, it seems likely that this difference of opinion is due in part to a more careful search for tuberculous lesions as well as to a different judgment as to what is sufficient evidence of intestinal origin in any case. These cases reported in New York were early cases in which the lesion had not become widely disseminated. Had these cases progressed a little farther, producing extensive lesions in the bronchial lymph nodes and lungs, none of them would have been reported as intestinal cases. Many cases seen at autopsy with considerable involvement of the intestinal lymph nodes seem to me more likely due to intestinal infection than to that through the respiratory tract, on account of the light thrown on the dissemination of tuberculosis by animal experiment.

I. Straus,¹¹ of Paris, in a series of feeding experiments on guinea-pigs, in order to avoid the possibility of inhalation, injected tubercle bacilli into the stomach by means of a catheter passed into that organ. The tuberculous lesions that followed were in the cecum, mesenteric lymph nodes, liver, spleen, bronchial lymph nodes and lungs, just such a distribution as is often seen in our autopsies, but never attributed to intestinal infection. On the other hand, one injection which Straus made into the trachea by mistake resulted in lung lesion only.

Dr. Prudden in hundreds of intratracheal inoculations in rabbits does not recall a case of involvement of the mucous membrane of the intestine. The rule in intratracheal injection is for the lesion to be confined to the lungs and pleura; this may be because the animals are susceptible and die early or because they may have been killed for the special ends of the experiment.

Cornet¹² in over 3,000 experiments, excluding feeding experiments, found tuberculous foci in the intestine and mesenteric lymph nodes hardly more than six or eight times, in spite of the most extensive lesions elsewhere.

It is evident that tubercle bacilli which gain access to the body by the intestines are readily carried by the lymph stream to the thoracic duct into the superior vena cava, the right side of the heart and out into the lungs. Evidence of the infection of the thoracic duct and veins is not often reported, as the discovery of this channel is not easy to the unsophisticated, and such lesions are thus usually overlooked. Those accustomed to looking in this region, however, in cases of tuberculosis find very frequently an involvement of it. Thus Sigg¹³ reports that in 18 cases of tuberculosis in which vein tubercle or tuberculosis of the thoracic duct was looked for,

15 gave a positive result. In the opinion of those who are accustomed to look systematically into the thoracic duct and pulmonary veins in cases of general tuberculosis these are the common channels of dissemination of the bacilli.

Living tubercle bacilli have been found to exist fairly frequently in ordinary milk, by many observers, and it has been shown by Ravenel and others that bovine tubercle bacilli are pathogenic for man. It should, however, be noted that intestinal tuberculosis does not necessarily arise from food containing tubercle bacilli. Dust containing tubercle bacilli may be swallowed and thus cause an intestinal lesion. It has been demonstrated that tubercle bacilli survive the action of the gastric juice of guinea-pigs, as well as artificial gastric juice, and the fact that we find lesions of undoubted intestinal origin confirms this fact that they can pass through the human stomach uninjured. Von Behring has recently shown that tubercle bacilli can pass through the uninjured wall of the alimentary tract of the very young. It would seem, if Von Behring³ is right, from the facility thus offered for acquiring intestinal tuberculosis that cases of this sort should not be infrequent. It, however, seems probable that unless they prove fatal very early, there should exist possibly an intestinal lesion and certainly lesions of the mesenteric lymph nodes of the thoracic duct, the veins, the lungs, the liver and the spleen. It has recently been shown by MacFadjen and MacConkey¹⁴ that tubercle bacilli exist in many mesenteric lymph nodes that show no evident lesion. They examined by first grinding and then injecting into guinea-pigs lymph nodes that showed no evidence of tuberculosis, from eight tuberculous cases and from 20 non-tuberculous cases. The mesenteric lymph nodes from five of the eight tuberculous children produced tuberculosis in the guinea-pigs, and five of the 20 from supposed non-tuberculous cases also gave a positive result.

The Topography.—In looking at some of the statistics of the distribution of tuberculous lesions in children as shown at autopsy, we find the abdominal organs fairly frequently involved. Thus in 416 autopsies on tuberculous infants from one to four months old, Frobilius¹⁵ found the lungs involved in 100 per cent. of the cases, the bronchial lymph nodes in 99.2 per cent., the intestines involved in about 27 per cent., and the mesenteric lymph nodes in 16 per cent. Schwer¹⁶ in 123 autopsies on tuberculous children found the respiratory organs involved in 85 per cent. of the cases and the intestines in 50 per cent. Carr¹⁷ in 120 autopsies on tuberculous children, found the lungs involved in 75 per cent. of the cases, the bronchial lymph nodes in 80 per cent., the intestines in 55 per cent., the mesenteric lymph nodes in 54 per cent. In only five cases were the mesenteric lymph nodes the sole seat of the disease. Biedert¹⁸ has collected the data of 1,346 autop-

sies on tuberculous children with the different organs involved as follows: Lungs, 79.6 per cent.; bronchial lymph nodes, 78 per cent.; intestine, 31 per cent.; mesenteric lymph nodes, 40 per cent. This corresponds more nearly to the results of the autopsies I have analyzed than those of Holt, who found the lungs involved in 99 per cent. of the cases the bronchial lymph nodes in 96 per cent., the intestines in 37 per cent. and the mesenteric lymph nodes in 35 per cent.

TABLE I.—DISTRIBUTION OF TUBERCULOUS LESIONS IN AUTOPSIES COLLECTED BY VARIOUS WRITERS.

	Number of Autopsies.	Lungs. Per cent.	Bronchial Lymph Nodes. Per cent.	Respiratory Organs. Per cent.	Intestines. Per cent.	Mesenteric Lymph Nodes. Per cent.
Frobilius	416	100	99.2		27	16
Schwer	123			85	50	
Carr	126	75	80		55	
Biedert	1,346	79.6	78		31	40
Holt	119	99	96		37	35
Freeman	158	71	76		23	28

I think we must conclude that where the lesions found are everywhere advanced, it is impossible to state what the tract was in which the invasion originally occurred. For in cases of intestinal origin the lungs and bronchial lymph nodes may show very soon prominent lesions, while as soon as the lungs become considerably involved a reinfection of the intestines from the swallowed sputum may take place.

If we should take the ground suggested by the experimental work of Straus, that we can only be sure of lung infection when the lungs and bronchial lymph nodes alone are involved and that we can feel fairly certain of intestinal origin when the mesenteric lymph nodes show as advanced a lesion as the bronchial lymph nodes and lungs, then the proportion of cases of tuberculosis of intestinal origin would rise markedly.

The tabulation of these 158 autopsies on tuberculous cases emphasizes certain impressions that many of those working clinically in children have had.

Table II shows the age at the time of death of the children including only those that died before the third year; because the children in these institutions are usually adopted, if healthy, when two years old, so that the figures for the third year and later are not reliable for comparison. Comparing, however, the first and second year, we find 61, or 64 per cent., of deaths in the first year, against only 34, or 36 per cent., during the second, and two-thirds of the cases during the first year occurred between the third and ninth month.

A tabulation of the cases with lesions of the mesenteric lymph nodes or intestines, or both, gives a similar result, 67 per cent. occurring dur-

ing the first year and 33 per cent. during the second.

TABLE II.—THE AGES OF 98 CASES OF TUBERCULOSIS THAT DIED DURING THE FIRST TWO YEARS.

1 to 3 months.....	4	
3 to 6 months.....	21	
6 to 9 months.....	21	
9 to 12 months.....	15	
Under one year.....	—	61
12 to 15 months.....	12	
15 to 18 months.....	6	
18 to 21 months.....	13	
21 to 24 months.....	6	
Under two years.....	—	37
Total	—	98

A comparison of the age at death of all the children with all the tuberculous children shows the average age at death to be $7\frac{1}{2}$ months later in the class of tuberculous children than among the other children. In considering these figures we must bear in mind that the mortality of children during the first year is a large part of the mortality of the first five years, that is to say, the general mortality of the first year is very high.

I have prepared a table of the nutrition of the tuberculous babies as compared with the babies dying from other disease (Table III), in order to accentuate the fact that tuberculosis is a sufficiently acute general disease in infancy to cause death very often before marked emaciation takes place. In general, I believe that marked emaciation in a child under two years counts against rather than for a diagnosis of tuberculosis. Although many diseases of infancy often cause death very rapidly and before time has elapsed for much emaciation to take place, we find the nutrition of the tuberculous cases not materially worse than that of the non-tuberculous cases.

TABLE III.—NUTRITION OF TUBERCULOUS AND NON-TUBERCULOUS CASES.

	Tuberculous. Non-Tuberculous.	
	Per cent.	Per cent.
Very poor.....	17	10 $\frac{1}{2}$ %
Poor	47	44 $\frac{1}{2}$ %
Fair	26 $\frac{1}{2}$	25
Good	9	17 $\frac{1}{2}$ %
Very good.....	0.67	2 $\frac{1}{2}$ %

The distribution of the gross lesions in the 158 tuberculous cases I have tabulated is shown in Table IV. As the diagnosis in these cases rests for the most part on gross examination, without the aid of the microscope or inoculations in animals, only the most extensive involvements are noted. The part most often showing evident lesion is the bronchial lymph nodes, in 120 cases, or about 76 per cent.; the lungs next in 112 cases, or about 71 per cent., and the mesenteric lymph nodes or intestines in 52 cases, or nearly 30 per cent. The meninges being involved in 21 per cent of the cases.

TABLE IV.—THE DISTRIBUTION OF THE LESIONS IN 158 CASES OF TUBERCULOSIS IN YOUNG CHILDREN.

Bronchial lymph nodes.....	120	76.0
Lungs	112	71.0
Spleen	90	57.0
Liver	66	42.0
Mesenteric lymph nodes.....	44	28.0
Pleura	41	26.0
Meninges	33	21.0
Small intestine.....	30	19.0
Mediastinal lymph nodes.....	28	18.0
Kidney	20	13.0
Cervical lymph nodes.....	14	9.0
Large intestine	7	4.4
Thymus	6	4.0
Pericardium	5	3.0
Peritoneum	5	3.0
Suprarenals	3	2.0
Pancreas	2	1.3
Stomach	2	1.3
Trachea	2	1.3
Retropharyngeal lymph nodes...	2	1.3
Chest wall internally.....	1	0.6
Hip-joint	1	0.6
Femur	1	0.6
Little finger.....	1	0.6

The grouping of these lesions showed such a great variety that it was impossible to classify them by organs in an intelligible manner. In order to make a compact classification I have prepared tables of the lesions accompanying (1) the bronchial lymph node and lung cases, (2) the mesenteric lymph node and intestinal cases, (3) the meningeal cases. The lesions are classified simply as cranial, thoracic and abdominal.

Of the 138 cases represented in the table of cases involving the bronchial lymph nodes and lungs (Table V) by far the greatest number, 86, or 62 per cent., showed lesions in both the bronchial nodes and lungs; 30, or 22 per cent., showed lesions in the bronchial lymph nodes, but not in the lungs, and 22, or 16 per cent., showed lesions in the lungs but not in the lymph nodes. Seven cases showed lesions in the bronchial

TABLE V.—THE DISTRIBUTION OF THE LESIONS IN 138 CASES OF TUBERCULOSIS INVOLVING BRONCHIAL LYMPH NODES AND LUNGS.

	Bronchial lymph nodes, not lungs.	Lungs, not bronchial lymph nodes.	Bronchial lymph nodes and lungs.
No other lesions.....	7	5	15
With other thoracic lesions..	4	—	5
With spleen.....	2	—	5
With liver.....	1	—	—
With other abdominal organs	9	13	41
With abdominal and cranial lesions	3	2	16
With cranial lesions only....	1	1	2
With cervical lymph nodes....	1	1	1
With cervical lymph nodes and abdominal lesions.....	1	—	1
With cervical lymph nodes and joint	1	—	—
	30	22	86

lymph nodes alone, five in the lungs alone and 15 in both the bronchial lymph nodes and lungs, in all 22 cases, which are about 14 per cent. of the total tuberculous cases.

As to the general distribution of these three classes of cases, 36 had thoracic lesions only and 95 abdominal lesions and 25 cranial lesions.

Table VI shows the distribution of the lesions in 52 cases involving the mesenteric lymph nodes or intestines, or both. Six of these cases show thoracic lesions, but no other abdominal lesions, while 29 cases show involvement of other abdominal organs and the thorax and 12 cranial lesions in addition. The 23 cases of mesenteric lymph-node involvement without evident intestinal lesion are not to be wondered at if the view is sustained that bacteria can pass through the uninjured intestines of infants. Seven of these 159 cases, or $4\frac{1}{2}$ per cent., were considered by the pathologists who made the autopsies to be cases of intestinal origin.

TABLE VI.—THE DISTRIBUTION OF THE LESIONS IN 52 CASES OF TUBERCULOSIS INVOLVING THE MESENTERIC LYMPH NODES AND INTESTINE.

	Mesenteric lymph nodes but no intestinal lesion.	Intestines but no mesenteric lesion.	Mesenteric and intestinal lesions.
Intestine alone.....		1	
With thoracic lesion.....	3	1	2
With thoracic and other abdominal lesions.....	10	5	14
With thoracic and other abdominal and cranial lesions.....	6	2	4
With thoracic and cervical lesions.....	3		
With other abdominal and cranial lesion.....	1		
	23	9	20

The tabulation of meningeal cases is chiefly interesting on account of the wide distribution of the lesions in most of the cases, for 23 of the 33 cases showed both abdominal and thoracic involvement.

TABLE VII.—THE DISTRIBUTION OF THE LESIONS IN 33 CASES OF TUBERCULOSIS MENINGITIS.

Without other lesions.....	3
With thoracic lesions.....	5
With abdominal lesions.....	1
With thoracic and abdominal lesions.....	22
With cervical, thoracic and abdominal lesions	1
With thoracic and joint lesions.....	1
	33

The Clinical Manifestations.—The tuberculosis of infancy is usually an acute, widely disseminated affection, which, wherever it enters in a considerable proportion of cases, involves the bronchial lymph nodes and lungs. It may (A) remain encapsulated in the lymph nodes and never spread, a condition apparently

rare in infancy, or it may (B) remain encapsulated for a time and then, with an attack of measles, or whooping cough, or influenza, or other depressing disease, may spread to the lungs and other organs, or it may (C) never become encapsulated, but spread immediately through the lymphatics to the bronchial lymph nodes and lungs and other organs. It is usually a most obscure disease for diagnosis, the presence of miliary tubercles or small deposits in the lungs giving but slight and indefinite signs, and it is often only when the meninges become involved that a definite diagnosis can be made. The original infection is apt to be associated with a rise of temperature, but the temperature may after a few days decline to or near normal, and show but little development again until near the termination of the disease, when the presence of a considerable elevation of temperature indicates usually a mixed infection rather than the intensity of the tuberculous process. Tuberculosis of the lungs generally shows merely râles and slight changes from normal respiration, and it is only with advanced changes that signs of consolidation appear. When this stage is reached there is apt to be a thickening of the pleura, so that increased dullness or flatness and diminished breathing are added to the signs. The enlarged bronchial lymph nodes can rarely be made out.

The involvement of the meninges, which is very frequent and occurred in nearly 21 per cent. of the cases which I have tabulated, gives a typical and easily recognized set of symptoms. A disposition changed suddenly from amiable to irritable, vertigo, persistent vomiting, gradually increasing stupor, often with eye symptoms, and one-sided paralysis, disturbance of the rhythm of respiration (sighing to Cheyne-Stokes), and later the automatic movements, mask-like face, and occasionally convulsions, and all this usually with but slight temperature. Stiffness of the back of the neck with or without opisthotonos, is a very common and important symptom. The Kernig sign can usually be elicited. Evidences of tuberculosis in other organs can often be made out in confirmation of the diagnosis. The liver is enlarged, no more, perhaps, than the common fatty livers in infants, but such enlargement is very commonly present when tubercles are present in that organ. If the spleen is involved, it is usually just palpable, that is, it will come against the finger pressed beneath the free border of the ribs, with a deep inspiration and such splenic enlargement is a very valuable confirmatory sign in suspicious cases.

The duration of this disease in infants is often apparently short. In institutions it is not rare for them to die a few days after they enter the hospital. In those that are carefully watched in homes a duration of two or three or four weeks is often noticed. A condition from which it is necessary to differentiate this disease is the unresolved or persistent pneumonia which is fre-

quently seen in institutions. These are often complicating pneumonias following one of the exanthemata. An attempt is apparently made to resolve and the temperature drops, but gradually rises again. The respirations remain rapid and the signs persist. These children become markedly emaciated, and usually die, after gradually failing. At autopsy they show a fibrous change with bronchiectasia. These unresolved pneumonias can usually be differentiated by the marked physical signs, the higher temperature, the slow course and the much more marked emaciation.

Tuberculous peritonitis I have rarely seen in an institution for infants and young children. It is an infection to which older children are subject. The same is true of the local infections.

Tuberculous cervical lymph nodes are very rarely found in infants, an argument perhaps against the respiratory infections in infancy. In my autopsies at the Foundling Hospital I searched especially for cervical lymph-node tuberculosis with rare success. Only 14 of the 158 autopsies on tuberculous cases that I have tabulated, or 9 per cent., show involvement of the cervical lymph nodes. Dr. C. N. Dowd, of this city, who has operated on more than 100 cases of lymph-node tuberculosis, 61 of which were under ten years of age, had only three under three years of age. In like manner tuberculosis of the joints occurs rarely under three full years of age.

Summary.—Tuberculosis in infancy arises most often from an infection through either the respiratory or alimentary tract; the comparative frequency of these two modes of infection has not yet been definitely determined.

The tuberculosis of early life is most common during the first year, when children are on an exclusive milk diet, and much milk contains tubercle bacilli, and bovine tubercle bacilli are pathogenic for man. At this period, owing to the structure of the intestinal wall, bacteria can probably pass through it, although it is uninjured.

Experiments on animals show that inhalation tuberculosis causes usually lesions of the bronchial lymph nodes and lungs alone, while wherever the portal of entry these structures become very early involved. Inoculation experiments prove that the mesenteric lymph nodes may be tuberculous without the presence of any gross lesions in them.

Twenty-six and one-half per cent. of the 158 autopsies on tuberculous cases at the Foundling and Nursery and Child's hospitals, which I have tabulated, show intestinal or mesenteric lesion on gross examination.

The tuberculosis of infancy, unlike that of later life, is usually an acute, widely disseminated, general disease, with moderate temperature and few symptoms and physical signs unless the invasion of the meninges give rise to symptoms.

Tuberculosis of the cervical lymph-nodes and

of the joints is rarely seen under the third year. The power to overcome a tuberculous infection that has spread from the lymphatics and invaded the organs apparently does not exist in infancy.

While the autopsies I have tabulated show a very wide distribution of the tuberculous disease in these infants, they probably indicate a much less general distribution than really existed, for the data is based often on hurried gross examination without microscopical confirmation.

A series of autopsies in the same institutions, in which the intestines were carefully examined without being separated from the mesentery, and with microscopical examination of all suspicious thickenings, would probably show a much larger proportion of intestinal involvement and a still greater proportion could be found by animal inoculations.

REFERENCES.

1. Raczyński. *Jahrbuch f. Kinderheilkunde*, Bd. 54, p. 66, 1901.
2. Koch. *British Medical Journal*, 1902, Vol. II, p. 1885.
3. Von Behring. *Deut. med. Wochenschrift*, Sept. 24, 1903.
4. Hosenpys. *Proceed. N. Y. Path. Soc.*, 1895, p. 1.
5. Schmidt. *Inaugural Dissertation*, Freiburg, 1897.
6. Guthrie. *Lancet*, 1899, Vol. I, p. 286.
7. Still. *British Medical Journal*, 1899, Vol. II, p. 455.
8. Hiller. *Münchener med. Woch.*, Nov. 24, 1904.
9. Wagener. *Münchener med. Woch.*, Nov. 24, 1904.
10. Woodhead. *Medical Press and Circular*, XIV, London, 1888, p. 265.
11. I. Straus. *Archiv med. experimentelle*, First Series T, VIII, 1896, p. 689.
12. Cornet. *Nothnagel's Practice* (Am. Edition), Tuberculosis, p. 143.
13. Sigg. A. *Beiträge zur Lehre von der acuten Miliärtuberculose*.
14. MacFadjen and MacConkey. *British Medical Journal*, July 18, 1904.
15. Frobelius. *Jahrbuch f. Kinderheilkunde*, Bd. XXIV, 1886.
16. Schwer. *Ein Beitrag zur Statistic und Anatomie der Tuberculose im Kindesalter*.
17. Carr. *Lancet*, 1894, Vol. I, p. 1177.
18. Biedert. *Nothnagel's Practice* (Am. Edition), Tuberculosis, p. 143.

TWO UNUSUAL CASES OF GASTRIC CANCER.¹

BY WILLIAM FITCH CHENEY, M.D.,

OF SAN FRANCISCO, CAL.;

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE, COOPER MEDICAL COLLEGE, AND PHYSICIAN TO LANE HOSPITAL, SAN FRANCISCO, CAL.

It is one of the charms of our professional work that disease presents itself in ever varying aspects. We become familiar with certain types within which the manifestations are fairly constant; but even within these types, variations of greater or less degree occur. Our recognition of a disease in any given case must depend upon the conformity of its symptoms and signs to those described as belonging to a certain type; but occasionally the variations from the usual are so wide that deduction misleads us and our conclusion as to the process at work proves later to have been wholly incorrect. Such abnormal and unusual cases of disease become of especial interest, because they serve to remind us of the possibility of error and to prevent us from becoming overconfident of our diagnostic abilities; in other words, because they help to cultivate in us what Osler calls "the grace of humility," a virtue which he declares to be the most desirable of all in a physician's character. Cancer of the

¹ Read before the California Academy of Medicine, February 28, 1905.

stomach is one of the types of disease in which the symptoms and signs are usually so definite that the condition becomes easy of recognition; and we learn to feel that we can reason with confidence from the manifestations presented to the pathological condition that causes them. The following cases, because they did not present the symptoms and signs that are usually expected, and because the real diagnosis found at autopsy came as a surprise in each instance, seem therefore worthy of report in detail.

Case I.—A man, aged fifty-four years, a miner by occupation, entered Lane Hospital, Sept. 15, 1904. His family history was negative. Previous to the onset of his present illness he never had any serious disease in his life. He was born in England, but had lived in America for nineteen years. He was unmarried. All his life he had taken alcohol regularly, but never to excess. He had no history of venereal disease. For the past ten or eleven years his work had been heavy labor in the mines.

As recently as July, 1904, the patient was doing heavy work, and had no complaint to make. In the beginning of August he began to feel ill, and not like working, and consulted a physician, who diagnosed malaria. He was treated for this, but grew no better; so finally, later in August, he saw another physician, who found a greatly enlarged liver. During this time, and subsequently, the patient had no complaint to make except of general malaise and a feeling of flatulence and occasional pain in the bowels. These symptoms persisting, he decided to come to San Francisco for treatment.

On examination, he was found to have a greatly enlarged abdomen. Palpation in the region of the liver showed an irregular tumor extending below the level of the navel. On Sept. 19, this tumor was found upon measurement to extend 6 cm. below the level of the navel in the right flank and 2 cm. below the level of the navel in the left flank. There was no special tenderness over this mass, and it was found to be directly continuous with the liver dulness above. The abdomen contained at the time of the first examination a considerable amount of free fluid. The urine examination showed no albumin, no sugar, no casts, but a few uric acid crystals and an abundance of amorphous urates. The blood examination on Sept. 15 showed 50 per cent. of hemoglobin, 3,950,000 red corpuscles and 14,500 white corpuscles. No analysis of stomach contents was made, as there were no symptoms to call for it. The lungs showed no abnormality, but the heart gave a systolic murmur over the point of maximum impulse, though there was no displacement of the apex to the left. The man had originally been referred to the care of Dr. Stanley Stillman, and it was with him that I saw the case. We both considered the condition to be one either of cancer of the liver or syphilis of the liver; with the probabilities in favor of the latter, because of the

good nutrition of the patient, the absence of pain and of the usual symptoms accompanying malignant disease. It was therefore decided to put the man upon iodide of potassium in ascending doses, at least as a therapeutic test.

During the days that followed the patient's heart rate was persistently above normal, ranging from 90 to 110, and at times running as high as 120 in the evening. The temperature was elevated each afternoon, as high as 100° or 101° F., though it was normal each morning. The iodide of potassium was gradually increased until 60 grains were taken three times a day. The drug was well tolerated but had absolutely no effect upon the size of the liver. On the contrary, the man's general condition steadily grew worse. He developed edema of the feet and ankles, gradually increasing until it involved the legs, thighs and the genitalia, finally becoming so excessive as to constitute the chief cause of complaint. In fact, aside from the distress caused by the swollen limbs, the patient had no complaint to make, except of an occasional pain in the abdomen, which he attributed to flatulence. He had a good appetite, did not lose in weight, had regular and well digested stools, never vomited his food, and during most of his illness was able to be up and about in the garden adjoining the hospital. He gradually developed an increasing amount of fluid in the abdomen, which interfered with his respiration and disturbed his sleep at night, so that at last he could not rest except in a sitting posture.

As his condition thus steadily grew worse, the conclusion was reached by Dr. Stillman and myself that the condition of the liver must be malignant; and it was decided to subject the patient to an exploratory operation, with the object of securing one of the nodular masses from the liver for microscopical examination. Exploratory operation was done on Oct. 20, 1904. A large amount of fluid was evacuated and the liver was found studded with nodules averaging the size of a walnut. One of these nodules was excised and submitted to Dr. William Ophüls for examination. His report upon the tissue was as follows: "The tumor consists of a thin framework of fibrous tissue with large, comparatively regular, round and oval spaces that are filled with very large polygonal epithelial cells, with large round or oval nuclei. The cells show many mitoses. There are extensive areas of fatty degeneration and necrosis in the center of the epithelial masses. In some places there are small cylindrical lumina filled with hyaline material. The liver tissue near the tumor shows a marked compression and cyanotic atrophy."

Diagnosis.—"Carcinoma of the liver, perhaps primary, but probably metastatic, but not from the gastro-intestinal tract." The patient did not rally after the operation; his temperature gradually ran up, and he died on the evening of Oct. 23, rather suddenly, with no preceding symptoms except slight cough and difficulty in breathing.

An autopsy was made on Oct. 25 by Dr.

Ophüls. The liver showed on its anterior surface a large number of light grayish red and grayish white projecting nodules, varying in size from those just visible to some the size of a walnut and larger. The liver extended 15 cm. below the costal margin in the mammary line, and measured 40 by 35 by 13 centimeters. Tumor nodules similar to those projecting from the surface were found scattered about through the organ. The stomach was found slightly dilated. At its fundus, about in the middle between the cardiac orifice and the pylorus, at the greater curvature, there was found a circular ulcer about 5½ cm. in diameter, with elevated margins; the margin and the bottom of the ulcer were infiltrated with grayish white hard tumor masses. In the middle of the ulcer the stomach wall was perforated, the perforation measuring about one centimeter in diameter, and closed by a tumor mass in the ligamentum gastro-colicum. In the tail of the pancreas was found a tumor mass about the size of a walnut; and a considerable number of lymph glands in the upper retroperitoneal space were enlarged and infiltrated with tumor. Microscopical examination of the tissues showed that the process in the pancreas, lymph glands, fundus of the stomach and liver was carcinomatous. The other organs of the body showed no evidence of malignant disease. The direct cause of death was edema of the lungs with extensive collapse.

This case certainly possessed features that entitle it to be called unusual. In the first place, the common symptoms of cancer of the stomach were all lacking. The patient had a good appetite, ate heartily, digested his food well, had no nausea or vomiting, no pain in the stomach after food, no loss of weight and no cachexia. In fact, there was not one symptom present such as we are accustomed to consider diagnostic of cancer of the stomach. In the second place, while it was recognized that the liver was the site of a large tumor found during life, and while the conclusion was finally reached that this tumor of the liver was due to malignant disease, still there seemed no reason to conclude that the disease in the liver was secondary to disease in the stomach. Even at the exploratory operation, no gastric tumor was found. It appears remarkable that from so small a neoplasm as was finally found in the stomach at autopsy, such an enormous metastasis could have occurred in the liver. The situation of the new growth, at the fundus, was probably responsible both for the lack of gastric symptoms and for the preservation of nutrition. No test meal was ever given, and the criticism may perhaps justly be made that this ought not to have been omitted. The reason for its omission was the lack of symptoms to suggest it. Even if it had been made, it is questionable whether the analysis would have been characteristic, owing to the situation of the new growth; and in view of the revelations made by the autopsy, it was perhaps as well that the stomach tube was not used, for the ulceration caused by

the cancer had perforated the stomach, and the tube might have done serious damage. The case can only be classed as belonging to that clinical variety of gastric cancer known as the latent.

In his monograph on "Cancer and Tumors of the Stomach," Fenwick has the very pertinent passage: "It is a common clinical observation that a rapid involvement of the liver usually masks the symptoms of the primary growth in the stomach, which is often found after death to be quite inconsiderable in size. In the absence of a necropsy, the patient is usually supposed to have died from primary cancer of the liver. The frequency with which this mistake is made is indicated by the fact that nearly one-third of all cases which are diagnosed as cancer of the liver are found after death to present a primary growth in the stomach."

Case II.—A man, aged thirty-seven years, a rancher by occupation, was sent to Lane Hospital from the country on Oct. 30, 1904. He was referred to the care of Dr. Emmet Rixford by his physician in the country, and I saw the case in consultation with Dr. Rixford. The history obtained was as follows: The man had never had any serious illness previous to the present one, and never before in his life had been ill enough to go to bed. In February, 1904, he began to feel weak and tired. At the same time it was noted that he had grown paler and had lost in weight. Since then all these symptoms had persisted and increased. At the time of the examination his principal complaint was of pain in the region of the spleen and of a lump which he had discovered there. His appetite was fair, but not good. His food distressed him a little just after eating, but he never vomited. The bowels were not constipated. He had been told in the country that he had malaria with enlargement of the spleen.

The physical examination showed that the patient was decidedly pale and somewhat sallow. He was moderately emaciated. The mucous membranes, as well as the skin, showed marked anemia. In the abdomen there was visible a mass on the left side, extending as low as the level of the navel. On palpation, this mass was found to have a sharp lower edge, like that of an enlarged spleen. On percussion, dulness was found over this mass continuous with the splenic dulness at the lower portion of the thorax, the vertical measurement of dulness in the anterior axillary line being 15 cm. The mass did not extend to the right of the median line. It was quite tender on palpation, and the patient would not permit deep manipulation to be made. The lower margin of the liver was palpable below the border of the ribs, and its total area of dulness in the mammary line was 10 cm. No other abnormality was found throughout the abdomen. The blood examination, made Nov. 3, showed the hemoglobin to be 53 per cent.; the red blood corpuscles 3,700,000 and the white corpuscles 18,500. A few poikilocytes were seen, but no

megalocytes and no nucleated reds. The differential count of white corpuscles showed 83 per cent. of polymorphonuclears, 12 per cent. lymphocytes and 5 per cent. large mononuclears. The case was looked upon as one of secondary anemia, probably due to chronic malaria, as the patient had long lived in a malarious section of the San Joaquin valley; and the enlargement, apparently of the spleen, seemed to give further evidence of the correctness of this diagnosis. The patient was put upon liberal diet, a mixture of iron, arsenic and strychnine, and was instructed to get out into the garden adjoining the hospital as many hours of the day as possible.

During the days that followed, the patient was under close observation. He ate well and never vomited his food, but complained frequently of pain in his left side in the region of the tumor. As this pain was his chief source of annoyance, and as good results had been obtained from the X-ray in other cases of splenic enlargement associated with pain, it was decided to subject this patient also to daily treatment with the X-ray over the supposed enlargement of the spleen. Until Nov. 7 his temperature remained practically normal, ranging from 98° F. in the morning to 99° F. in the evening; but after this date there was noted each day a slight elevation of temperature in the evening, reaching 100° or 100½° F., while the morning temperature remained normal. The pulse rate ranged continuously between 80 and 100, with an average of 90. In spite of treatment, the patient continued to complain of pain in his side, which was at times severe enough to interfere with his sleep at night. He also complained at times of cramps in his bowels and of distention of the abdomen with gas. Gradually also his appetite failed, and he could not be persuaded to take nourishment. A second blood examination, made Nov. 11, showed 52 per cent. of hemoglobin, 3,500,000 red corpuscles and 11,500 white corpuscles; poikilocytosis was again noted, and uneven staining of the red cells; the differential count showed 86 per cent. polymorphonuclears, 11 per cent. lymphocytes and three per cent. large mononuclears. A third blood examination, made on Nov. 18, showed the hemoglobin to be but 44 per cent., the red corpuscles 3,350,000 and the white corpuscles 12,000; the differential count remained practically the same as the week before. From these blood examinations, all of which were made for me by Dr. H. R. Oliver, it became evident that in spite of treatment directed to building up the blood the anemia was, on the contrary, steadily growing worse. These counts also showed another very suggestive feature, in the persistent increase in the number of white cells, with a disproportionate number of polymorphonuclears. This peculiarity in the count gave rise to the suspicion that the man might have an abscess in the spleen as a cause of his anemia; and to settle this point, if possible, a puncture was made directly into the tumor on

Nov. 15, but the aspirating needle found nothing except a little dark blood.

As the patient's condition continued to grow worse, as manifested clinically by marked anemia, progressive weakness, with dropsy of the feet and lower limbs, persistence of pain in the side, inability to sleep at night, and gradual increase in the pulse rate, it was decided, after conference with Dr. Rixford, that an exploratory operation should be made, to permit a direct investigation of the mass in the left side. Such operation was performed on Nov. 22. On exposure of the tumor by an incision directly over it, it was found to be *not* the spleen, but an enormous carcinoma of the splenic end of the stomach, adherent to the anterior abdominal wall. In an attempt to free it from the abdominal wall an opening was made into a large cavity filled with necrotic material, mixed with undigested and decayed food. The cavity held probably one quart or more. It was evacuated with great difficulty. There was found an opening from this cavity into the stomach large enough to admit the thumb. A portion of the tumor was excised for microscopical examination, the walls of the cavity were stitched to the abdominal wall about the incision, a drainage tube was passed into the cavity and the abdominal wound then closed. Following the operation, the patient could be fed only by rectum, and gradually grew weaker until his death, on Nov. 28.

The portion of the tissue removed at the operation was submitted to Dr. Ophüls for examination, and his report showed it to be a typical adenocarcinoma. An autopsy was made by Dr. Ophüls on Nov. 29. At the site of the stomach there was found a large nodular tumor mass about the size of two fists, with extensive gangrene and suppuration on its anterior surface. In the interior of the stomach a fairly normal mucous membrane was seen over a small part of the cardiac orifice, the pylorus and some of the lesser curvature; but the rest of the stomach wall was very much thickened and infiltrated with hard, nodular tumor masses that showed diffuse gangrenous ulcers on their inner surface. The anterior wall of the stomach showed a large perforation. In the posterior part of the right lobe of the liver there was found an abscess cavity, 4½ cm. in diameter, filled with thick green pus. From this main abscess cavity a second smaller one opened; and a little more posteriorly and on one side of the abscess, there were many small metastatic foci of pus. The pancreas presented a diffuse induration and irregular infiltration with tumor nodules in the middle and in the tail. There was marked enlargement of the retroperitoneal lymph glands but no visible tumor was found in them. Microscopical examination showed the process in the stomach, liver and pancreas to be adenocarcinoma.

In this case as in the first, there were peculiarities in the clinical history and physical findings that made the diagnosis of gastric cancer unsuspected. Malignant disease was finally con-

sidered a probability, before the exploratory operation was done; but the stomach was not thought of as the likely site. The man's loss of weight, anemia and cachexia all spoke definitely for malignancy, while the abdominal tumor, whatever its origin, gave further basis for this conclusion. But there was never any vomiting, for days the appetite was reasonably good, a large amount of food, both liquid and solid, was taken and retained, and so the stomach escaped suspicion. On the other hand the tumor mass was so large and so fixed, its surface was so tender to manipulation and its site and contour indicated so plainly a splenic origin, that for a long time no other condition than enlarged spleen could be considered possible; and this in spite of the fact that it was examined almost daily for two or three weeks and every effort made to identify it. The chief point against its being enlarged spleen was the fact that it did not descend on deep inspiration. At last both Dr. Rixford and myself became convinced that the mass was in reality a malignant growth, and this conviction was what prompted the exploratory incision; though it must be confessed that we were not prepared for what was actually found. In this case also no test meal was ever given, simply because no indication for it seemed to exist. If it had been given, probably the analysis would have offered a clue as to the presence of gastric cancer; and in the retrospect of the case I regret that this investigation was omitted. Possibly, however, the test meal might have suffered the fate of so much of his food regularly taken and have escaped into the abscess cavity adjoining the stomach, with which there was a free communication through the anterior wall. This case must be classed as one of perigastric abscess complicating gastric cancer; and the mass that we found on physical examination and which we spent so much time in endeavoring to identify, was in reality a large abscess just beneath the abdominal wall. This complication, although an unusual one, is not especially rare, for it is estimated by Fenwick and by other authorities to occur in from three to five per cent. of all cases of gastric cancer.

I wish to repeat, in conclusion, what I said at the outset: that such unusual cases as these described seem to me to have especial value for the seeker after truth in our profession; because they convince him he does not yet know all that he might know, they make him hesitate another time when he is inclined to be absolutely sure, and thus they teach him not only humility in his own work but also charity for the work of others.

Immunization by Means of Milk.—The question of whether it is possible to immunize a child by means of milk containing antibodies, has been experimentally investigated by S. SALGE (*Jahrb f. Kinderheilk.*, March 1, 1905). He finds that if one animal be fed on milk from another species containing antitoxic or bactericidal substances, these substances will not appear in the tissues or blood of the former animal.

THE PRESENT CLINICAL AND BACTERIOLOGICAL STATUS OF VINCENT'S ANGINA.*

BY WM. N. BERKELEY, A.B., M.D.,

OF NEW YORK;

ASSISTANT TO THE CHAIR OF MEDICINE, UNIVERSITY AND BELLEVUE MEDICAL COLLEGE; ATTENDING PHYSICIAN, GOOD SAMARITAN DISPENSARY; ASSISTANT IN PATHOLOGY, PRESBYTERIAN HOSPITAL.

IN view of the practical importance of the condition now commonly known as Vincent's angina, it seems worth while to report some recent work of mine on the subject and sum up the clinical and bacteriological facts of recent literature.

Clinical History.—The disease, from the clinical point of view, may be defined as a localized acute or subacute inflammation, usually ulcerative, less often membranous, of the mouth and fauces, in which, below the contaminated surface of the diseased tissue certain peculiar bacilli and *Spirocheta*—to be described later—are found in virtually pure culture. The etiological nexus between the ulcer and the germs is not yet scientifically established and cannot be till pure cultures of the bacteria have been successfully inoculated; but every one who has had opportunity to study the germs and the ulcer together has become reasonably convinced, in the light of similar pathological processes elsewhere, that the relation between the two is causal.

The history of the affection is briefly as follows: The bacilli and spirilla were apparently known already to Miller (Plaut²⁰) in the early eighties, but only as saprophytes in the mouth. Babès in 1893²¹ appears to have described and figured the bacilli and spirilla as constituents of pus from the gums in scurvy. In 1894 H. C. Plaut (*loc. cit.*), of Leipzig, described several cases of fetid membranous stomatitis and tonsillitis, in which spirilla, and a spindle-shaped bacillus (called by him "Miller's bacillus," were present in the exudate. This account attracted no notice. In 1896, H. Vincent, now of Paris,²² described and figured the same germ-combination, or a highly similar one, in certain cases of hospital gangrene seen in Africa. In 1898 Vincent and Bernheim, independently and nearly at the same time, reported the same germs found in pure growth in tonsil-ulcers of a peculiar appearance. Vincent's accounts now finally gained the attention of the medical world, and many subsequent laborious and exhaustive reports on the same topic from his pen have finally fixed his name to the affection as a convenient and now generally accepted designation.

Synonyms are numerous. Plaut'sche angina, ulceromembranous angina, ulceromembranous stomatitis, angina diphtheroides, "Bazillen-spirillen-angina," and others have been proposed. Changes have also been rung upon Vincent's own name, and he has been called "Vincenti," "St. Vincent," etc., by the uninformed. Dr. R. J. Carlisle informs me that the term Vincent's angina has been adopted as the official designation of the dis-

* Read before the Medical Section of the New York Academy of Medicine, March 21, 1905.

ease at Bellevue Hospital, and in spite of the seeming injustice worked to Plaut, the earliest observer, the present name seems destined to be permanent.

The literature of Vincent's angina is now enormous. In this article no attempt has been made to list any but the most important papers. The lists of Baron,¹⁸ of Gross¹⁹ and of Vincent^{22,23} taken together with mine, make an essentially complete bibliography to date.

As to geographical distribution and frequency the disease may be called relatively rare; both in Europe and America; but the statement in the last edition (1904) of Simon's Clinical Diagnosis¹ that the only cases at that time reported in this country were those of E. Mayer⁵ and J. W. Fisher⁶ is quite misleading as to the actual occurrence of the disease. During the last four years the condition has been repeatedly noted in all the large clinics in New York. Sobel and Herrman² gave an excellent account of 12 cases observed in the summer and autumn of 1901 at the Good Samaritan Dispensary. I presented a case³ at the Pediatric Section of the New York Academy in February, 1903. Dr. L. T. Royster⁴ reported a case from Norfolk, Va., in August, 1903, with an admirable drawing of the germs. Dr. Paul L. Cocke wrote me (February, 1904) of a typical case in Birmingham, Ala. Dr. E. W. Perkins, of New York, showed me last year a specially interesting case in a young man of twenty-two years from Wilkesbarre, Pa. Besides this patient and another seen with Dr. G. A. Tuttle, of the Presbyterian Hospital, I have notes of 27 cases observed in the last three or four years at my own clinic, 25 by myself and two by my assistant, Dr. Francis Auersperg. The failure of many throat specialists and pediatricists to recognize it is probably due only to the fact that their attention has not been specially called to its clinical appearances.

Since Vincent's earlier papers many series of cases have been reported abroad—by Bruce¹⁴ in London, Ivanow¹⁶ in Moscow, and by German, French and Russian writers besides, in considerable numbers. There are now many hundreds of cases on record—enough to warrant some reliable clinical inductions. In further remarks I shall therefore not consume time with a detailed account of my own 29 cases, but mention them only when they enlarge or complete the clinical picture.

In respect of the *morbid anatomy*, the lesion is usually a circumscribed penetrating ulcer. It may, however, spread laterally as a false membrane; or the two processes may be combined. The first is the most usual condition. The site of election in an immense majority of the cases is the tonsil, usually one, rarely both. Out of 22 of my cases the right tonsil was involved 14 times, the left seven, and both once. A case of average severity is apt to begin in the upper angle of the tonsil as a grayish or greenish-gray necrosis quite similar to diphtheritic membrane, and from

one-eighth to three-fourths of an inch in diameter. When this necrotic covering sloughs or is broken, a penetrating ulcer is discovered, often large enough to admit the end of the little finger and from one-half to three-fourths of an inch in depth. The margins of the hollow are steep and irregular and edges and bed are covered with pus and saliva. It bleeds easily from contact with food or the swab. As a rule it granulates up quite readily under treatment, and is usually healed in from one to three weeks. Sometimes the whole of a hypertrophic tonsil is involved in a destructive process which levels off the organ as though it had been removed by operation. The uvula also partly or entirely disappeared in the same way in two cases reported by B. Auché.⁷ Smears gotten with a sterile swab from beneath the slough show pus cells, necrotic fragments, mucus, and a pure or nearly pure growth of the bacteria. The reaction of the exudate is usually slightly acid to litmus. Gross (*l.c.*) removed some infected tissue from the tonsil of a medical student and stained sections of the slough and the margin of the ulcer. The slough was fibrinous, infiltrated with pus-cells and permeated with bacilli and spirilla to the practical exclusion of all other germs.

The tonsil and fauces are usually red and edematous. The neck on the affected side is also slightly swollen, and one or two large lymph nodes are generally present—mostly one, rarely five or six. The node most affected was as large as a guinea egg in one of my cases and threatened suppuration, but rapidly declined in size during treatment of the tonsil ulcer.

Instead of the tonsil, the lips, or gums, or cheek, or tongue, or all of these combined may show a pseudomembrane or one or more ulcers in which the bacteria are present in large numbers. Almost any severe ulceration of the tonsils runs over a little on the gums and margins of the velum palati adjacent.

A concluding remark should be added here,—that bacteria of the same appearance quite regularly occur also in the pus of pyorrhea alveolaris (Riggs's disease) though the causal relation is here much more doubtful. This question will be touched upon again in discussion of the diagnosis.

Symptoms and Signs.—The majority of the cases occur in children. Of my 29 cases 13 (nearly half) were in children between three and six years of age; of the rest there were 9 cases between six and ten years, 3 between ten and twenty years, 4 between twenty and thirty-three years. Fourteen were male, 15 female.

Of 28 cases in which the season of the year was noted, I had 3 cases in July, 6 cases in September, 4 in October, 3 in November, 2 in January, the rest scattered. There is probably no special seasonal prevalence similar to that so familiar in the bronchitis and diarrhea of infants.

The introductory symptoms are usually those

of a subacute sore throat,—without a distinct chill, but with headache, malaise, and a mouth temperature ranging between 99° and 102.5° F., rarely higher. In ordinary cases the general symptoms subside in three or four days. Locally the patient complains of moderate pain and dysphagia. There may be slight salivation. The breath is foul, the other organs of the body are only sympathetically disturbed. In several of my patients a routine examination of the urine, made for the sake of thoroughness, was negative. The diazo reaction was also negative. In two cases differential counts of the leucocytes were negative.

The signs are simply those described under the morbid anatomy. The superficial similarity of Vincent's angina to tonsillar diphtheria in the earlier stages is so great that antitoxin has been frequently given or the case put into a diphtheria ward before the true nature of the condition was recognized.

The question of the communicability of the disease has excited much interest. So far as the present weight of experience goes, the question may be broadly answered in the affirmative. One of my patients, a married woman, thirty-three years old, came on September 21, 1903, with a typical sloughing Vincent ulcer on top of the right tonsil, giving a history of pain in the throat for five or six days previously. She said she had four children. She recovered promptly under treatment. On October 26 (five weeks later) she brought one of her children, a boy of five years, saying the child had been complaining of a sore throat for "over a week." The second patient had a precisely similar Vincent ulceration, in the upper angle of the same tonsil,—large numbers of bacilli and spirilla on the swab. Whether this second case was accidental or communicated I leave unanswered. This is the only instance in my own experience where contagion could be reasonably surmised. Other writers, however (Sobel, Auché, Baron and others) have reported several cases in one family, or among children in the same institution, or in soldiers crowded in barracks. The possibility of contagion must, therefore, be borne in mind.

Complications and Sequela.—Without including some rare clinical curiosities noted elsewhere in this article, there is now abundant evidence that Vincent's angina may complicate or be complicated by various other zymotic diseases of the mouth and pharynx, notably diphtheria, syphilis, scarlatina, scurvy and the ordinary coccus anginas. The bacilli and spirilla are also apt to appear in pure growth on tonsil-stumps after amputation (Vincent), and in varying quantities (Bruce and others) in aphthous ulcers of the buccal mucosa. I have already commented on their appearance in various inflammations of the gums. Vincent thinks them specially apt to appear at the time of the eruption of the permanent teeth.

The most important complication is diphtheria.

The following (Dr. G. A. Tuttle's patient, mentioned before, is an average case: The patient was a female nurse, aged about thirty years, in the Presbyterian Hospital. When she sought advice she was found to have an ulceromembranous affection of the right tonsil, rather high fever, local pain, and severe large lymph nodes in the neck. Smears from the exudate showed a great number of bacilli and spirilla of typical appearance. Cultures on Löffler's serum also showed, the next day, an excellent growth of morphologically perfect diphtheria germs, and the case ran a course similar to mild diphtheria and was followed by a paralysis of some of the faucial muscles. Transplantations of the culture grew badly and died out before a guinea-pig could be inoculated.

Simonin,¹⁸ Gallois and Courcoux,²² Vincent and others have reported similar cases in which inoculated guinea-pigs died promptly. Vincent⁸ is convinced that *Bacillus diphtheria*, in many other cases, is only saprophytic in the exudate of the ulcer of *Bacillus fusiformis*, and that the reverse condition is also quite frequent. Some of these questions of coincident infection can be solved when the Vincent germs are once successfully grown; some will of course remain conjectural.

As systematic complications, polymorphous erythematous, temporary albuminuria, suppurating axillary nodes and painful and swollen joints have been reported (see Ivanow¹⁶ for literature and discussion), but are probably coincident streptococcus infections.

Duration.—The cases ordinarily heal as rapidly as any other ulcer of similar extent,—in from one to three weeks. They naturally last longer in patients with unhealthy mouths and decaying teeth. Lemoine reported a case lasting seventy days. M. Letulle⁹ describes a sluggish case in a man of twenty-seven years, which lasted forty-eight days, in spite of daily energetic treatment with tincture of iodine. My longest case lasted two weeks and was treated with a mild alkaline gargle only. Certain cases in sickly and insane patients may be very refractory to treatment. The same thing, however, may be noted sometimes in so benign an affection as thrush. In old cases of Riggs's disease the germs persist for years in the pus from the gums.

The prognosis as to life is probably always good in the simple angina forms. One of the severest cases reported is that of Lansac¹⁰ in a soldier aged twenty-two years. The man had chills, high fever (102.8° F.) and great pain, but recovered in twelve days.

Neither predisposition nor immunity appears to follow a single attack.

Diagnosis.—In two-thirds of the cases the clinical aspect of the disease is so characteristic that my assistants—once a good case has been shown them—have usually been able to recognize the condition without the microscope. A microscopical examination, however, is essen-

tial to avoid error, and may be made with the greatest ease. A sterile swab is first plunged into the depth of the slough; a smear is made at once, fixed, and while still warm, flooded with carbolic fuchsin. The fuchsin works better when fresh. Ten seconds' contact is enough, though the germs do not overstain. The slide (or cover) is then washed under the tap, dried and examined. The germs will be found in vast numbers, and almost uncontaminated.

A complicating diphtheria may occur, as I have stated. It is a rare accident unless, as sometimes happens from the general similarity of the two diseases in their early stages, the case is put into a diphtheria ward first and the microscopic work done afterward. Diphtheria must be diagnosed in the usual way with the serum culture.

To be perfectly sure, it is wise in all cases to examine *both* a fresh smear from the swab, *and* a culture. I might suggest this procedure as a desirable one for health department laboratories generally, as the two conditions are easily confounded.

Coincident syphilis cannot always be excluded, except by the course of the case. Such coincidences are rare, but several are already on record. A tonsil ulcer with Vincent's bacteria in pure culture in the exudate is usually, however, to be diagnosed as not syphilitic.

If a properly made swab shows no Vincent bacteria, the condition is not Vincent's angina, for the germs in this disease are present from the first and persist over the surface of the healed ulcer for some days after recovery is clinically complete, in this regard imitating the behavior of the *Bacillus diphtheria*.

In routine examination of sputum the Vincent spirilla and bacilli may be often noticed, coming sometimes from a Vincent's angina—more often from old pyorrhea of the gums.

It is interesting to note here, also, that such inflamed gums often bleed, and the blood has been mistaken for pulmonary and gastric hemorrhage. The bacilli and spirilla in the stain will clear up the case at once, as in a patient recently referred to me for diagnosis who had been under a very trying treatment for three months for ulcer of the stomach.

Treatment.—I have attempted no treatment of my own cases except a rational one. The patient is put to bed during the existence of fever and a gargle provided—sodium bicarbonate and boric acid, equal parts, in a sufficient quantity of hot water. Uncomplicated cases require nothing more. Treatment of complications will also be rational.

Vincent recommends tincture of iodine or Lugol's solution swabbed into the ulcer vigorously every day. Other French writers suggest solutions of methylene blue, also vigorously applied. One doubts whether some of the "refractory" cases reported by these writers may not be aggravated by so much mechanical violence to the tissues, though occasional cases certainly

occur in which no treatment seems materially to modify the sluggish character of the process. Pyorrhea alveolaris may owe some of its incurableness to this fact.

Many other remedies have been suggested—hydrogen peroxide, silver nitrate, chromic acid, potassium chlorate, and various antiseptic gargles. In my experience they are needless.

Isolation should be practised to a reasonable degree, especially in asylums, prisons and barracks.

Bacteriology.—The germs now commonly called "Vincent's bacteria" and occurring clinically as described above, are morphologically two in number.

1. A spindle-shaped bacillus which Vincent named *Bacillus fusiformis*. This name is provisional only, inasmuch as other writers (Ghon and Sachs²⁴) mention bacteria of the same name which are apparently different.

Vincent's bacillus is 7 to 14 μ in length, 1 to 2 μ in greatest thickness, and stains fairly with most aniline dyes, very brightly with carbolic fuchsin (Ziehl's solution). The best method of staining it has already been described. In swabs from the throat the germ is nearly always "beaded," i.e., shows 2 to 5 unstained zones with stained zones between. It is usually straight, but may be curved, or even S-shaped. If curved or very short or very long or much beaded in a particular case on the first examination, it will preserve these marks throughout that case. The germ is easily identified, no other bacterium in the mouth being just like it. It decolorizes readily with 95 per cent. alcohol, and with mineral acids. The effect of the Gram stain is disputed, but is probably as a rule negative. The motility of the germ is also a moot-point. Baron¹⁸ and others describe a sluggish motion in the "hanging drop" (presumably a drop of saliva), and Baron figures also a flagellum-stain, the germ showing in all 2 to 6 flagella, lateral or terminal, or both. He describes the flagellum-stains as exceedingly difficult and uncertain, whatever the method.

2. A spirillum, more properly a true "curl" or spirochæte—one-half or one-third as thick as the bacillus, staining much more lightly as a rule, and showing from two to five spiral turns, which may be "tight" or "loose." On the cover-glass the spirillum has usually a rectilinear axis, but may be doubled or twisted on itself. Its axial length is 15 to 25 μ . It is generally agreed to be motile, but stained flagella have not been mentioned so far in the literature. It is also beaded at times, but less often than the bacillus.

Both these germs, as I have remarked before, have been probably known for a long time as saprophytes in many apparently normal mouths, sharing this mark with the *Bacillus diphtheria*, *Micrococcus lanceolatus* and other pathogenic bacteria. The occurrence of the germs in decayed teeth, inflamed gums, and aphthous ulcers has also been noticed by many. Simonin men-

tions (¹⁸ with literature) that they have also been seen in the pus of an abscess of Highmore's antrum, in a perilaryngeal abscess, and in mucus from several cases of dysentery in man and one case in a dog. In one of the human cases Le Dantec¹⁷ found spirilla only.

Cultural Experiments.—It is rather surprising that in view of the immense amount of ingenious research by many continental workers these germs still refuse to grow in pure culture. In some instances the organisms have been successfully carried, in a mixed growth, through a few transplantations, but they are rapidly overgrown by contaminating germs (mostly cocci) and soon disappear. Plating has been an absolute failure. Feeble contaminated growths have been secured in ascitic fluid by Carnot and Fournier¹¹; in old arthritic fluids, in "bouillon Martin," and in a combination of pleuritic fluid and peptonized bouillon (especially the spirilla) by Vincent¹²; in sterile saliva by Uffenheimer.¹³ Vincent notes that the cultures invariably exhale a peculiar fetid smell. Inoculations of the ordinary mixed cultures (Vincent) into animals have been followed by lesions in which the germs, still mixed, could be recovered. Uffenheimer (*loc. cit.*) inoculated the throat of one or two medical students with infected swabs. The results were negative.

For over two years past I have experimented with my cases, as they came to hand, on most of the known laboratory media—generally without success. I have tried the germs also on sterile placenta, on freshly excised tonsils, and on sterile disks of human liver gotten at autopsy—without success. Broth made in the ordinary way from freshly excised tonsils of children, and then peptonized, gave in one case a very fine and encouraging result, but since that time only a feeble contaminated growth, rarely surviving the fourth transplantation. It gives the characteristic fetid smell.

In my hands all plate media, however modified, have failed.

The germs have been noticed by Uffenheimer (*loc. cit.*), myself and others, growing remarkably well for a short time in the condensation drops on the surface of certain solid media (like Hiss's typhoid medium), but soon dying. The culture-tube bacillus, as I have seen it, is slender and not beaded; it may be found in characteristic threads consisting of three, four or even five members. The spirillum shows no special grouping in tube-cultures. Good swabs from the throat show a perfectly characteristic colony of bacilli which has been well presented by Gross (*loc. cit.*) in a colored plate.

The most recent cultural experiments are those of D. Veszprémi.²⁵ The case was one of purulent periostitis of the right upper jaw in a man of fifty-three years. At the autopsy a phlegmon of the temporal muscle, purulent periostitis of the cranial base, purulent meningitis and secondary gangrenous abscesses of the lungs were

found, accompanied by a frightful odor. In the pus immense numbers of the bacilli and spirilla were found, along with "bacteria in threads" and cocci. The pus was inoculated into a rabbit, which died with similar lesions—gangrenous abscesses. Cultures from the rabbit-lesion upon "liquor pericardii + bouillon, rabbit serum + liq. pericardii, rabbit-serum + bouillon, etc.," were found to grow actively in from twenty-four to forty-eight hours, with flocculent granules upon the sides and bottoms of the test-tubes. The granules when spread and stained showed at first many fusiform bacilli, afterward some "thread bacteria" and spirilla. The cultures could be kept going indefinitely, and gangrenous abscesses could be invariably produced in a long series of rabbits from injection of the mixed cultures.

This report illustrates a fact soon recognized by all who attack the above problem, namely, that the different strains of the germ vary enormously in vitality, sometimes growing well on media in which germs inoculated from a second or third case promptly die.

From present appearances we may hope that the problem will soon be completely solved.

A final remark may be added. The peculiar association of two such dissimilar germs as a pathogenic entity has excited much discussion. The French writers accept the condition as a peculiar "symbiosis"; others have suggested that the two are morphologic variants of a single germ. Until successful pure cultures have been made, the question must be left unanswered. Clinically the spirillum (or a similar spirillum) has been noticed for a long while past without the bacillus in the hollows of carious teeth. Vincent has also observed the bacillus alone at times in superficial membranes on the tonsil. The characteristic clinical picture, however, appears only when both germs are present.

6a East Fifty-eighth Street.

AUTHORITIES.

1. Simon, C. E. *Clinical Diagnosis*, 1904, p. 205.
2. Sobel, J., and Herrman, Chas. N. Y. *Medical Journal*, December 7, 1901.
3. Berkeley, W. N. *Proceedings of Pediatric Section, New York Academy of Medicine*, February, 1903.
4. Royster. *Archives of Pediatrics*, 1903, p. 600.
5. Mayer, E. *Am. Jour. Med. Sci.*, 1902, p. 187.
6. Fisher, J. W. *Am. Jour. Med. Sci.*, 1903, p. 438.
7. Auché, B. *Gaz. Hebdom. des Sci. Méd. de Bordeaux*, 24, 1903, p. 505.
8. Vincent, H. *Soc. Méd. des Hôp.*, 1903, p. 617.
9. Letulle, M. *Soc. Méd. des Hôp.*, 3. Ser., 17, 1900, p. 1197.
10. Lansac, M. B. *Soc. de Biol.*, II Ser., 1901, 3, p. 571.
11. Carnot and Fournier. *Soc. de Biol.*, II Ser., 3, 1901.
12. Vincent. *Soc. de Biol.*, II Ser., 3, 1901.
13. Uffenheimer. *Munch. med. Woch.*, July 5 and 12, 1904.
14. Bruce, H. W. *Lancet*, July 16, 1904.
15. Baron, C. *Archiv f. Kinderheilkunde*, XXXV, 1902, 161.
16. Ivanow, A. *Deutsch. med. Zeitung*, 1903, p. 1121.
17. Le Dantec. *Gazette Hebdom. des Sciences Méd. de Bord.*, 21, 1900, p. 194.
18. Simonin, M. *Soc. Méd. des Hôp.*, 1902, p. 239.
19. Gross, A. *Deutsch. Archiv f. klin. Med.*, 1903-1904, 79, p. 369.
20. Plaut, H. C. *Deutsch. med. Woch.*, 1894, p. 920.
21. Babès. *Arch. de Méd. Experimentale*, 1893 (quoted by Simonin).
22. Vincent, H. *Annales de l'Institut Pasteur*, 1896.
23. Vincent, H. *Soc. Méd. des Hôp.*, 18, 1901, p. 70.
24. Ghon and Sachs. *Centralb. f. Bact., etc.*, Bd. XXXVIII, H. 2.
25. Veszprémi, D. *Centralb. f. Bact., etc.*, Bd. XXXVIII, H. 2.
26. Gallois and Courcoux. *Bulletin Médicale*, 1903, 1, p. 525.

ON WIDAL REACTION.

BY E. ANDRADE, M.D.,

OF JACKSONVILLE, FLA.;

BACTERIOLOGIST, STATE BOARD OF HEALTH OF FLORIDA.

SINCE Widal first published his method of diagnosing typhoid fever several modifications have been brought forward, not only with the object of increasing its reliability, but also to simplify the procedure and increase its practical application. Wyatt Johnston, taking up Widal's assertion that the blood of typhoid patients did not lose its agglutinating properties when dried, used extensively dried blood to perform the reaction. The method was to dissolve the blood with water and then mix a loopful of the solution with an equal amount of typhoid culture. The claims of Wyatt Johnston, in regard to the practical applicability and results of its method have been amply substantiated by all those who have used it. A short time after Johnston's paper was published I used the dry blood method in the examination of 35 cases of clinically diagnosed typhoid fever, and obtained a positive reaction in 33. Though for scientific investigation and very doubtful cases it is advisable to use the serum method, which permits an exact dilution, in routine work the dry blood method when carefully performed gives very accurate results. By repeated trials it is possible to measure more or less the degree of dilution from the color of the mixture. At the laboratory we employ a standard color which represents approximately a dilution of 1 to 20. A loopful of this mixture mixed with a similar one of typhoid culture makes the required solution of 1/40.

Not much attention was at first paid to the culture, but later on it was observed that some cultures had a tendency to clump spontaneously and form a thin film on top of the bouillon. The reaction of the bouillon has a good deal to do with these peculiarities. If the reaction is alkaline the culture will often show film formation and spontaneous clumping. An exactly neutral bouillon deprived of sugar is the best adapted. The age of the culture also plays a very important part in the proper performance of the reaction; cultures from twelve to eighteen hours old, at the incubator temperature of 37° C., are generally used. A better indication than the age of the culture is the degree of turbidity of the bouillon. Nicolle and Catouillard recommend that the culture should have a degree of turbidity equal to that of a mixture of 100 c.c. solution of bicarbonate of potassium 1/100 and five drops of a 1/100 solution of neutral acetate of lead. If the turbidity of the culture is deeper, sterile water should be added until the proper depth is obtained.

The daily transplanting and the proper growth of the cultures requires a great deal of attention, which can be obtained only in a well equipped laboratory. To place the performance of this test within the reach of many practitioners, the general use of the dead cultures of the *Bacillus*

typhosus has been suggested lately. The cultures are treated with chloroform, ether or formol; the last is generally preferred. One drop of formol for each 2 c.c. of culture is the proportion recommended by Nicolle. Rüdiger uses 1 c.c. of formol for each 100 c.c. of culture. Some contradictory claims have been made in regard to the comparative value of the dead and the living cultures in the performance of the test. Nicolle and Halipre claim that a young living culture is the most sensitive to the action of the agglutinins, but other observers affirm that a dead culture, properly prepared, is just as sensitive. In view of these contradictory assertions, I determined to test every specimen of suspected typhoid which came to the laboratory, with both living and dead culture. As the majority of the specimens of typhoid which come to the laboratory are of dried blood, I could also study whether dead cultures gave equally good results with the dried blood, as it is claimed with the serum. Our standard of dilution for both serum and blood is 1 to 40, but a few experimental tests were made with a higher dilution. So far, 300 specimens have been tested. From a careful comparison of the results with the living and dead cultures, I have come to the following conclusions:

1. Living and dead cultures are about equally sensitive to the action of the agglutinins of typhoid fever, though in dead culture the reaction may require a longer time to take effect, and it is therefore necessary to keep the specimen under observation for two hours. In some cases the reaction is quicker with the dead than with the living cultures.
2. The dried blood method is equally effective with dead as with living cultures.
3. The reaction, when it takes place, is more characteristic with dead cultures than with living cultures. There are no pseudo-reactions with dead cultures.
4. Dead cultures do not seem to lose their sensibility to the agglutinins of typhoid fever for a long time. I have now in use a dead culture which was prepared six months ago, and it reacts just as typically as when first used.

MEDICAL PROGRESS.**MEDICINE.**

The Cytodiagnosis of Pleural and Cerebrospinal Fluids.—On account of the limited value in diagnosis from an examination of the various pathological effusions formed in the body, the different laboratory methods available give but little help. The clinical data obtained in the study of cases with pleural effusions is only of limited diagnostic value. The same may be said of bacteriological examinations in many cases, as many of the effusions are sterile, particularly those of tuberculous origin. It is with this in view that E. TUNN (The Practitioner, April, 1905) calls attention to the valuable aid in diagnosis that is rendered by a careful study of the cells present in various pathological effusions. The author gives very carefully (1) the meth-

ods of performing cytological examinations; (2) the varieties of cells found in pathological effusions; and (3) the cytology of pleural effusions. As a result of a close study of the various cells found in the different pathological fluids, the author draws the following conclusions: (1) In pleural effusions the cytological formulae stated by Vidal and Ravant hold good in the great majority of cases. An excess of lymphocytes indicates generally a tuberculous origin; a preponderance of polymorphonuclear cells an inflammatory process due, for instance, to a pneumococcal or streptococcal infection. A passive or mechanical transudation contains, as a rule, a large number of endothelial cells. It must be borne in mind, however, that especially in the earlier stages of tuberculous effusions, departures from the rule frequently occur. (2) The cerebrospinal fluid in meningitis of tuberculous origin usually shows lymphocytosis, whilst in inflammatory states caused by the meningococcus of Weichselbaum, the pneumococcus or streptococcus, and in posterior basic-meningitis it is characterized by an excess of polymorphonuclear cells. Many discordant results, however, due it may be in some cases to a secondary infection, have been recorded. Cytological examinations may thus help us not only in differentiating the various kinds of meningitis, but also in distinguishing meningitis from such conditions as the cerebral irritation of typhoid fever and other infectious diseases, from tetanus, and hysterical pseudomeningitis, in which there is no increase of cells in the cerebrospinal fluid. (3) The presence of lymphocytosis is almost constant in general paralysis of the insane, in tabes dorsalis, in syphilitic diseases generally of the central nervous system, and may be useful for diagnostic purposes in distinguishing these diseases from other affection more or less resembling them. General paralysis and tabes promise to be diagnosed even in early stages by the use of cytological examinations, as shown by Maillard. The importance of early antisyphilitic treatment in these diseases is generally acknowledged, and cytology would seem to afford the means of making an early diagnosis. The author contends that in no case should a diagnosis be based wholly on the result of the cytological examination, but this should form merely a valuable link in the chain of clinical evidence. As in ordinary blood examination, he emphasizes the great importance of making more than one cytological count of the pleural or cerebrospinal fluid whenever this is possible.

A Study of the Bone-Marrow in Typhoid Fever and other Acute Infections.—In a comparative study of the bone-marrow in typhoid fever and other acute infections, combined with a study of the leucocytes of the circulating blood in these conditions LONGCORE (*Bull. Ayer Clin. Lab. Penn. Hosp.*, January, 1905) shows that there is a close relationship existing between certain cells of the hemopoietic organs and the cells of the circulating blood in typhoid fever which differ essentially from the condition found in acute infectious diseases. His article is based upon the study of bone-marrow in twenty-six cases of typhoid fever, and for comparison in fifteen cases of pneumonia, four of peritonitis, two of miliary tuberculosis, one of acute cerebrospinal meningitis, one of retroperitoneal abscess, one of puerperal septicemia, four of chronic nephritis, one of carcinoma of the gall-bladder, and of two normal individuals. Leucocyte counts and differential counts were made in all cases. The author arrived at the following conclusions: The bone-marrow from twenty-six cases of typhoid fever showed certain definite and constant histological lesions. These lesions resembled very closely the changes in the mesenteric lymph nodes, lymphoid follicles of the intestine and spleen. The altera-

tions were characterized by the presence of many lymphoid cells, large phagocytes, and foci of necrosis. There was more or less hyperplasia of the blood-forming cells. In many of the marrows from cases dying of perforation and general peritonitis there were besides the disseminated foci of necrosis, diffuse degenerative changes in blood-forming cells, accompanied with marked oedema and congestion of the tissues. Differential counts of the bone-marrow cells from ten cases showed a marked relative increase of the lymphoid cells over the granular myelocytes. The bone-marrow from fifteen cases of acute lobar pneumonia, four cases of peritonitis, one of acute cerebrospinal meningitis, one of retroperitoneal abscess, and one of puerperal septicemia, all showed the same variety of alterations, differing in many important points from cases of typhoid fever. There was more or less extensive hyperplasia of the blood-forming cells, with a marked relative increase of the granular myelocytes over the lymphoid cells. In the cases of peritonitis due to causes other than typhoid perforation, diffuse degenerative changes were absent. In no cases of this group were foci of necrosis found. Large phagocytic cells were exceedingly rare or entirely absent. The bone-marrow from four cases of chronic nephritis and one of carcinoma of the gall-bladder showed no distinctive pathological alterations, and seemed to resemble very closely the marrow from two normal individuals. It is possible that the lesions in the bone-marrow in typhoid fever are in some way nearly related to and perhaps responsible for the hypoleucocytosis characteristic of the disease. It is also very probable that the lesions in the bone-marrow in acute lobar pneumonia, peritonitis, etc., are in close association with the hyperleucocytosis so often seen in these conditions.

The Relation between Congenital Malformation of the Heart and Acute Endocarditis.—The view that acute endocarditis is often observed as being due to congenital malformation of heart is supported by the findings of ROBINSON (*Bull. Ayer Clin. Lab. Penn. Hosp.*, January, 1905) observed in two cases. He reviews the literature on the subject and finds that there are seventeen fully reported cases of acute endocarditis complicating extensive congenital malformations of the heart. These, however, he concludes represent but a small proportion of such cases observed.

His two cases are of interest on account of the association of extensive acute endocarditis with congenital malformation. In one case the size and extent of the vegetations were remarkable, which were attached to the aortic valve almost blocking the opening in the septum ventriculorum. In both cases there appeared to be an attempt to close the opening in the first by vegetations, and in the second by the posterior leaflet of the tricuspid valve. The opening in both cases occurred in the membranous portion of the septum ventriculorum. The more common malformations reported in the 19 cases (17 from the literature and 2 of the author) were open septum ventriculorum 11 cases, 6 of which were combined with obstruction in flow of blood through the pulmonary orifice; 8 cases of patent foramen ovale, 3 of which were combined with pulmonary obstruction; stenosis of the right conus arteriosus, 6; pulmonary stenosis, 5; and patent ductus arteriosus in 3 cases. The seat of the vegetations were the pulmonary valves, 11 cases; tricuspid valve, 8 cases; on the wall of the right conus arteriosus or pulmonary artery, 4 cases each; on the mitral or aortic valves, 3 cases each; on the abnormal openings between the heart cavities, 2 cases; and 1 case each on the auricular and ventricular wall. The author draws the following conclusions: (1) Congenital malformations of the heart are generally con-

sidered to predispose to acute endocarditis. (2) The fact that the combination of acute endocarditis and congenital cardiac malformation is rare is because comparatively few cases of congenital cardiac malformation reach the age at which acute endocarditis is most common. Most cases, showing both pathological lesions, die in young adult life. (3) The form of extensive congenital cardiac malformation which is most frequently attacked by acute endocarditis is that in which life is most prolonged, namely, obstruction to the pulmonary outflow with openings between the auricles or ventricles. (4) The acute endocarditis more frequently attacks the right side of the heart in cases of congenital cardiac malformation.

Chronic Eczema and Senile Degeneration.—MxWIN LEALE (*Am. Med.*, April 15, 1905) says this skin lesion, having its initial onset during old age, can usually be attributed to the circulatory changes, and their consequent degenerations. He lays great stress on making a careful general physical examination, determining accurately the condition of the heart and blood vessels, the lungs, kidneys, etc., and meeting any pathological condition by its appropriate treatment. The circulation should be properly maintained and the emunctory carefully watched. Water should be taken frequently, but in small quantities at a time, to secure rather a constant flushing than an overdistention of the heart and blood vessels. Moderate exercise is advantageous. The local treatment should have for its object stimulating and thereby improving the peripheral circulation of the blood and lymphatics. Carefully regulated and systematic rubbing and friction best meet these conditions. Using the greatest amount of surface of the palms of the hands and fingers as can be well adapted to the affected surface, he adopts a combination of effleurage and massage a friction, the strokes of the hands following as nearly as possible the course of the veins and lymphatics. For lubrication a fine quality of olive oil is used and with this for medication a pure, finely powdered zinc oxide, each application lasting from 20 to 40 minutes every night, preferably just before retiring to secure sleep. Where more stimulation is necessary a strong tincture of pix liquids is used. Every second night before the application the patient is given a bath at 94° F., using a pure olive oil soap. Under these methods of procedure, if carefully followed, one may expect in most cases within from two to eight weeks a more or less permanent cure. He cites an illustrative case.

Some Remarks on Physical Diagnosis: (1) Transmanual Auscultation. (a) **Ulnar Palpation.**—DAVID RIESMAN (*Am. Med.*, April 22, 1905) says transmanual auscultation consists in auscultating through the hand placed over the heart, and can be used satisfactorily only with one of the newer binaural stethoscopes. Heart sounds and heart murmurs can be heard with surprising distinctness through the hand placed on the precordia. The method greatly facilitates the timing of a murmur, inasmuch as the palpation and the auscultation are done at the same time and place. It is not only possible to auscultate directly through the fingers and hand, but almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat, and then resting the stethoscope lightly on the finger. The principal advantage of transmanual auscultation will be found in differentiating presystolic from systolic murmurs. It is also of value in timing peculiar murmurs heard over the entire precordia, or perhaps the entire chest. Ulnar palpation is done with the ulnar side of the hand, and confines the examination to the individual interspaces. The ulnar side of the hand is laid in

each interspace successively, while the patient counts "one, one, one;" "one, two, three;" or "ninety-nine," according to individual preference. The ulnar surface of either the hand or the little finger must be firmly placed in the interspace, the hand being held almost at a right angle with the patient's chest. It is best to stand a little to the side of the patient and use the same hand for both sides of the chest. The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It is of most value in the diagnosis of effusions, especially in determining the upper level of the exudate. It is practised most successfully on the front of the chest. On the back, by reason of the difficulty in locating the interspaces, it is not so satisfactory, but it may be employed even there. This method is not offered as a substitute for the one now in vogue, but as an addition to it. Both should always be employed.

THERAPEUTICS.

Treatment of Status Epilepticus.—The following are the most common causes of the status epilepticus, according to K. ALT (*Münch. med. Woch.*, March 28, 1905). Constipation, with absorption of toxic products from the intestinal canal, alcohol, morphine, sexual excesses or nervous irritation, extreme heat, particularly exposure to the rays of the sun, sudden withdrawal of the bromides, and the use of iodide. Exacerbation of the disease may also be observed after acute illness, during which the patients are usually free from convulsions. The first thing to do is to empty the bowels by means of a high enema and calomel. Frequently the patient will improve wonderfully after the decomposed contents of the intestines are voided. The bromides are generally ineffectual since their action is too slow, and the patients often no longer react to even large doses. Chloral-hydrate in two-gram doses, per rectum, is excellent where the pulse is strong. Other valuable drugs in the epileptic state are amylenhydrate and dormiol. The former has been recommended hypodermatically, but the irritation will often give rise to new attacks. With cardiac weakness, 10 to 15 drops of the tincture of strophanthus should be added to the clymata. In very severe cases, the only remedy which will control the convulsions is chloroform which can be combined with oxygen. Theoretically, a bromoform-oxygen narcosis seems promising. Should the temperature be high, the patients may be placed into a cool bath, and in full-blooded individuals with acetoneuria, venesection, followed by a saline infusion, is in place. An interesting observation of the author, is that acetoneuria is common in the beginning status epilepticus of general paresis, but rare in genuine epilepsy.

The Use of Veronal in the Insane.—Some of the most troublesome cases of insomnia are encountered among the victims of insanity. The therapeutic application in this type of cases is awaited with interest. P. SÉRIEUX and R. MIGNOT (*Arch. de Neur.*, Jan., 1905) made a careful study of the effect of veronal in twenty insane patients troubled with insomnia. This drug has a marked hypnotic action in the insomnia of melancholia and acute dementia, producing a long, continuous sleep which begins from one to two hours after administration. The best dosage is to begin with 0.3 gm. (5 grn.), and so increase the dose gradually without going beyond a gram. The action is more marked and more regular after this drug has been used for several days. Veronal does not lose its effect after having been used for a long time; in one of the patients it was administered daily for eight months without augmentation of

dose. In the cases of dementia there is noticed a lessening of the automatic agitation, and in the melancholias a decrease in the agitation during the day following the sleep induced by veronal. In general paralysis, with agitation or with hallucinations, the action of this agent is very feeble; the sleep produced is very irregular and its duration is not long. In none of the cases, even after prolonged administration of a gram of veronal, was malaise or vertigo observed. There were no changes in the pulse nor in the heart sounds, and aged persons and those having cardiac lesions tolerated the drug well. Albuminuria was not observed, even after prolonged use. Veronal was employed in twenty other cases, with not a single sign of intolerance.

Neuronal as Hypnotic.—Neuronal was first recommended as a result of systematic study of the relation between chemical constitution and hypnotic action. The experience of L. BLEISTREU (*Munch. med. Woch.*, April 11, 1905) with neuronal, was on the whole very favorable. In severe cases of insomnia, 0.5 to 1 grams of the drug usually induced a natural sleep. Even where long-continued, tolerance or bad after-effects were not observed. The restlessness due to cardiac disease, arteriosclerosis and hemiplegia was also favorably influenced, and even the tabes, neuralgia and other conditions accompanied by severe pain, were benefited. Owing to the presence of bromine in the molecule, the drug will probably also do good service in pertussis.

Treatment of Laryngeal Tuberculosis with Phenosalyl.—Despite the fact that phenosalyl is not very poisonous, it possesses almost the same bactericidal powers as sublimate. Since it has been highly recommended in laryngeal tuberculosis, M. W. DEMPEL (*Therap. Monatshft.*, April, 1905) has tried it in every case that came under his observation in the form of a 3 to 5 per cent. solution in glycerin, after thorough cocaineization of the mucous membrane. Generally two to three applications a week are sufficient. The best effects were seen in shallow ulceration and erosions, where a cure was generally accomplished after 3 to 5 applications, no matter what the general health or the condition of the lungs. Deep ulcers require one to two months, and often do not heal at all. Moderate infiltrations generally demand prolonged treatment, but will finally yield, while extensive infiltrations, particularly those situated in the interarytenoid space are difficult to cure. Hoarseness and aphonia, if caused by erosions upon the true vocal cords will disappear rapidly, and the pain during swallowing is moderated. Phenosalyl contains the following ingredients: Carbolic, salicylic, benzoic and citric acids, glycerin and ethereal oils.

Stovaine as a Local Anesthetic.—Stovaine is a chlorhydrate of amyleine which was synthetically composed by Foumeau and employed by Reclus, Billon and others. In a preliminary communication in *Prak. Vrach.*, November 10, 1905, VOSKRESSENSKY reports some 30 various operative cases in which this anesthetic was employed, including the opening of deep paraproctitis, the excision of a cancer of the lower lip, hydrocele, Bassini's operation for hernia, strumectomy, etc., the drug being used in one-half per cent., three quarters per cent. and one per cent. solution (in water), the total quantity used 0.12. He summarizes the results as follows: (1) Complete anesthesia was obtained in all the 30 cases. (2) There were no symptoms of poisoning in any of the cases, as evidenced by the pulse, respiration, reaction of the pupils, and the central nervous system. (3) The anesthesia ensues almost at once, so that the operation can begin immediately after the injection. (4) The effect lasts about twenty minutes, and it is distinctly circumscribed never extending be-

yond the infiltrated tissues. (5) The wounds do not bleed any more than at other operations, although stovaine is counted among the vasodilators. (6) Contrary to cocaine no hyperesthesia was ever observed after the effect of the drug had ceased. (7) The weaker solutions are as effective as the one per cent. solution.

PRESCRIPTION HINTS.

Chronic Bronchitis.—E. F. INGALS recommends the following to relieve the cough in chronic bronchitis when opiates are not contraindicated:

℞ Morph. sulph.gr. i
Ammon. carb.gr. xl
Syr. pruni virg. }
Mist. glycyrrhizæ comp. }aa. ʒ iv

M. Sig. ʒ i in water to relieve the cough.

Or:

℞ Terpin. hydrat.gr. ii
Ext. cannab. indic.gr. 1/2
Codeinægr. 1/4
Ol. menth. pip.gr. 1/2
Sacch. alb.gr. iii

M. Ft. Capsulæ No. i.

Sig. One every four hours until cough is relieved.

Typhoid Fever.—MOORE (*Practitioner, London*) recommends turpentine in typhoid fever, as it acts as a readily diffusible stimulant, intestinal antiseptic prevents meteorism and checks hemorrhage. He prescribes it in the following form:

℞ Spts. turpentineʒi
Spts. aetheris nitrosiʒii
Spts. chloroformiʒii
Emulsion olei amygdalæ dulcis....q.s. ad. ʒvi

M. Ft. mictura lege artis.

Sig. Tablespoonful at one dose as required by the symptoms. Shake well before using.

Coryza.—In the treatment of coryza Anders recommends the following treatment: A purge consisting of blue mass gr. v—(0.30) at night, followed in the morning by a Seidlitz powder. The early administration of a diaphoretic such as Dover's powder gr. x—(0.60) at night followed by a large dose of quinine (gr. xv—0.972) may abort the attack. If these measures fail the following tablet produces good results:

℞ Quininæ sulph.gr. iiss (0.16)
Extract belladonnæ (Fld.)ʒiiss (0.09)
Sodii salicyl.gr. xxx (2.0)
Camphorægr. iiss (0.16)

M. et. ft. tablet No. x.

Sig. One tablet every hour or two.

Local inhalations of the compound tincture of benzoin (3 ii to a pint of hot water) for ten to fifteen minutes at a time, solutions of cocaine (2 to 4 per cent.), or the following used in an atomizer:

℞ Mentholgr. v (0.32)
Pinolʒx (0.32)
Benzoinʒi (3.2.)

Treatment of Acute Coryza.—According to M. WEITLANER (*La Quin. Therap.*, 25 Avril, 1905), acute coryza may be successfully aborted by the following combination:

℞ Sod. salicylate30.0
Pulv. doveri3.0

Mix and divide into 20 powders. Give at first every three hours, later two or three times a day.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text, illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, MAY 27, 1905.

NATIONAL TUBERCULOSIS ASSOCIATION.

THE annual meeting of the National Association for the Study and Prevention of Tuberculosis, held at Washington, D. C., during the past week (an abstract from the proceedings will be found in this week's MEDICAL NEWS, p. 1000) was not only an encouraging success in point of the numbers and distinction of members and guests in attendance, but also in the interest and practical character of its transactions, both from a scientific and sociological standpoint. Most of those who are earnestly concerned with tuberculosis in this country were present in the national capital, and the sessions, sectional and general, were so crowded as to test the capacity of the large meeting rooms of the new Willard Hotel. That this manifestation of interest was eminently justified will be amply evident from the variety and the importance of the subjects touched upon in the discussions.

The keynote of the opening general session, at which addresses were delivered by the President of the Association, Dr. Trudeau and the Vice-Presidents, Drs. Osler and Hermann M. Biggs, was that the most important need in the tuberculosis crusade is education—education of the people, but even more so, education of the

medical profession, and especially of the medical students, so that the very early stages of the disease may be recognized. For this Prof. Osler pleaded for the treatment of some incipient cases in all medical college hospitals and for dispensaries and reception hospitals, where they may be available for teaching purposes. The present intense prejudice that is at once aroused whenever a proposal to erect an infectious disease hospital is made was shown by both Dr. Osler and Dr. Biggs to be entirely without justification in any real danger of the spread of disease. As a matter of fact, intelligent care for consumptives in a neighborhood always makes the mortality from tuberculosis less than it was before, because some of the training and discipline inculcated for patients so that they may not become sources of danger to others spreads even to those in the vicinity of the hospital.

The reports of the committees on the early diagnosis of tuberculosis and the effect of climate in its treatment evoked interesting discussion. It is agreed that there is no pathognomonic sign of the incipency of pulmonary tuberculosis, but that the clinical picture must be taken in its entirety, and especially with reference to the individual's physical condition in every case. If in a person already under weight for height there is a rapid pulse, some slight rise of temperature in the afternoon, or after exertion, or at such times of physical stress as during menstruation, there must be always a suspicion of the presence of active tubercle bacilli, and if, in addition, there is a history of exposure to the contagion of the disease, with any loss of weight, then the patient must not be allowed to pass from observation until there has been an improvement in the condition. The universal agreement is that it is better to err on the side of overcarefulness for the patient's welfare than too great readiness to give a reassurance that may prove serious, because it leads to neglect of the early stage. Excellent diagnosticians of large experience did not hesitate to say, that where there was any ground for suspicion it was imprudent, if not indeed rash, to make a negative diagnosis on a single examination. This takes the physician down from his "sacred position of high priest of medicine, knowing everything at once and ready oracularly to declare it," as said the dean of New York diagnosticians; but it is better for the patient eventually that there should be repeated examinations and a frank confession of their necessity.

Among the experts in tuberculosis, especially among those from health resorts for the disease, there is practically unanimous agreement that tuberculin is of service in the early diagnosis of latent tuberculosis. While much encouraging work has been done with regard to agglutination methods in the diagnosis of incipient tuberculosis, it is conceded that as yet, if the method has any value, it is only for prognostic purposes. As regards vaccination and serum therapy, while progress in investigation is reported, none of the methods are ready as yet for use in human beings, and, in spite of one spectacular self-injection with human tubercle bacilli after supposed vaccination, discussed as having been performed in Belgium, it is extremely doubtful if any definite advance has yet been made, for the protective power conferred is probably only passing.

When Osler emphasized at the general session that patients, and especially young patients, should be promptly told that they were suffering from tuberculosis, his words were received with applause. No matter how much friends may urge the withholding of the truth, "lest it kill" the patient, it is considered better to put the true state of the case before the sufferer. In this matter there has been a complete change of medical opinion in recent years, and those having the largest experience with tuberculosis patients are the most emphatic as to the benefits likely to accrue from perfect candor and in the assurance that with due tact there is no danger of working serious harm.

Besides the discussions, a noteworthy feature of this meeting was the pathological display. The Phipps Institute, of Philadelphia, for the Study of Tuberculosis, had on exhibition a very striking set of pathological specimens, arranged to illustrate the phases of recent work. The Saranac Laboratory sent the specimens that formed the bases of the papers presented at the meeting, which added not a little to the interest of the work done. The Laboratory of the State Live Stock Sanitary Board of Pennsylvania placed, among other interesting specimens, on exhibition some results of the protective power of vaccination for tuberculosis in cattle, which show that, by somewhat different methods, as much is being accomplished here as Behring claims to have done in Germany. Of the immunity to the severe lesions of tuberculosis thus artificially produced there could be no doubt.

On the whole, this first annual meeting of the

National Association for the Study and Prevention of Tuberculosis sets a high standard which it will be difficult to equal in the years to come, much less surpass. There can be no possible doubt in the minds of those who were in attendance, or who read its proceedings, that the Association has a distinct sphere of action for good of its own, and that it has been put well on the road to fill it by its organization and first meeting. What has been accomplished under its first President, the gentle Dr. Trudeau, for whom the general session was in many ways an ovation, will surely be continued under the practical organizing genius of Dr. Hermann M. Biggs, of New York, who now succeeds him.

THE OPSONIC POWER OF THE BLOOD.

NEARLY two years ago the extensive vocabulary of medicine was enriched by a word of new coinage. Prof. A. E. Wright, formerly of the Army Medical School, Netley, England, in collaboration with S. R. Douglas, applied the term "opsonins" (from the Greek, "opsono"—I cater for) to certain substances present in the blood-serum, which by acting on the invading bacteria, prepare these for the phagocytic power of the white blood cells. The discovery of these substances and subsequent researches in their nature have opened a suggestive chapter in preventive medicine.

A quarter of a century has elapsed since Metchnikoff first described the important function of phagocytosis. During the greater part of this time the leucocyte was regarded as the only factor in this process. Indeed, Metchnikoff and his school went further and looked upon the white blood cell as the source of the various antibodies present in the blood. The tendency of recent research has been to strip the leucocyte of many of its supposed attributes, although the original power of devouring bacteria is universally recognized.

A picture of amazing perplexity is presented when one attempts to contemplate the protective mechanisms of the blood. To the phagocytic powers of the white blood cells, and the agglutinating, bacteriolytic and bactericidal powers of the blood, with all the bewildering mazes of Ehrlich's side-chain theory, must be added the distinctly separate rôle of the opsonins. These have been studied with great care by Wright and others and the results have illuminated some obscure corners in the doctrine of immunity.

The opsonins modify the bacteria in a manner which renders them a ready prey to the phagocytes. If blood-serum is allowed to stand, even if preserved in a closed capsule, its opsonic power gradually disappears. This fact may possibly interfere with future therapeutic applications of these substances. Another fact of eminent interest from the standpoint of immunity is that certain infections diminish the opsonic power, but have no effect upon the phagocytes. This is explained by the circumstance that certain bacteria and toxins weaken the opsonins. As a result, the natural resistance of an individual following certain bacterial and toxic invasions is reduced.

It has been found by Wright and Douglas that the opsonins play a very important and, indeed, the sole part in protecting the body against staphylococcus invasion. Normal human blood does not exert upon the staphylococcus any bactericidal power whatever, nor is this power developed by means of antistaphylococcus inoculations. Neither does the latter modify the leucocytes in any way, but it increases the opsonic power of the blood. It is a fact that individuals differ as regards their resistance to staphylococcus invasion, and it may be assumed that this difference is due to a temporary or a permanent deficiency in the opsonins. This deficiency enables the staphylococcus, which is always present in the integument, to enter and gain a foothold in the organism. The bacteria apparently unite with and destroy the opsonins with which they come in contact, so that a nidus is formed in which the bacteria proliferate freely, the circulating blood being unable to replace quickly enough the protective substances that have been destroyed.

It may now be asked, what is the nature of these bodies which prepare the bacteria for the subsequent feast by the leucocytes? The recent researches of W. Bullock and E. E. Atkin have shown that opsonin is not identical with any of the antibodies hitherto discovered in the serum. It is of relatively simple constitution, and is destroyed by heat.

These characteristics indicate that the opsonins are probably allied to the enzymes. If a way can be found to preserve the activity of the opsonins after their removal from the blood, then their sphere of usefulness in the therapeutics of preventive medicine will be readily recognized. As a branch of the extensive problem of immunity, the study of the opsonic power of the blood

is in its infancy and its future developments are awaited with interest.

THE BIOLOGICAL SIGNIFICANCE OF SLEEP.

It is surprising that physiology has as yet furnished no adequate explanation of sleep. The periodic lull in the vital forces which is accompanied by a lapse of consciousness, and which actually shortens sentient life by at least one-third, has been interpreted in various ways. The practical importance of discovering the causes that underlie sleep is obvious, for only through them can light be shed on the pathological types of slumber.

The hypothesis which has appealed most strongly is that which attributes sleep to an intoxication of the nerve centers by the products of metabolism. This theory classes sleep with the other forms of narcosis which are the results of drug action, or with the comas which supervene in the course of diseases of metabolism. Other explanations regard sleep as the outcome of cerebral anemia, to a retardation or acceleration of the venous outflow, to a retraction of the dendrites of the cortical cells, or to a loss of conductivity in and hence a blocking of the nerve-paths to and from the brain.

An exceedingly novel hypothesis of sleep has recently been expounded by E. Claparède (*Archives de Psychologie*, February-March, 1905). Instead of regarding sleep as the result of cellular intoxication, this author regards it as a means by which the body protects its cells from intoxication. It is a purely defensive mechanism. If sleep were the result of a poisoning of the nerve-cells by the metabolites of the body, how would it be possible to explain insomnia, in which undoubtedly the metabolic poisons are also present? Moreover, an individual may by sheer force of will, or by a stimulation of the highest cortical centers by drugs (e.g., coffee) stave off sleep for a considerable time. This fact militates against the supposition that sleep is an intoxication, for true intoxications, as by opium or chloroform, cannot be inhibited by will power or in any other way.

In conditions of extreme fatigue sleep is impossible. It cannot be denied that in this case the amount of toxic matter present in the body is greater than usual, yet in spite of this increase, the nerve-cells cannot be lulled to rest. This fact strongly refutes the theory of the toxic origin of sleep.

The hypnotic sleep and the prolonged sleep

of hysteria are exactly like ordinary physiological sleep, yet no one would attribute these to a cellular poisoning. These forms of sleep are of purely psychological origin and are of the nature of an inhibition of the activities of the higher cortical cells.

It is a fact worthy of note that among the unicellular organisms, the protozoa, sleep is unknown. The latter appears only at a later stage in organic evolution. Evidently sleep is not an essential attribute of protoplasm, for the single-celled animal performs all the necessary functions of life without it. Sleep must, therefore, be regarded as an accessory phenomenon of life, as a late acquisition. It is a mode of adaptation to the environment, by virtue of which adaptation the animal protects itself from the various noxious influences to which it is exposed.

It may be asked in what manner does sleep protect the body cells against intoxication? The answer is that during rest these are less vulnerable to external influences than during activity. Thus hibernation, or the long winter sleep occurring in the frog and other animals, tends to fortify these against the adverse changes in the environment. So also in the higher organisms the diurnal lapses of consciousness with their attendant depression of the processes, enable the individual to resist the injurious effects of the toxic products of metabolism.

During sleep, as is well known, the reparative processes are in the ascendant, and the organism gains in weight, while the wastes of the body are carried off or destroyed. In early life, when growth is most rapid, the amount of sleep required by the body is much greater than at a later period, when growth is less. It may, therefore, be stated as a corollary from this fact that bodily activity or wakefulness interferes with the reparative and constructive powers of the cells. There is a definite amount of vital energy at the disposal of the living units. This energy may be neutralized in internal work (growth) or external activity. The latter is incompatible with the former, hence sleep is necessary.

This novel theory, which regards sleep as an instinct which has been gradually evolved in the course of countless ages, may serve to explain many of the anomalies of sleep. Thus, the ability of the individual to determine beforehand the duration of his sleep, the vagaries of insomnia, hypnotism, hysteria and somnambulism, all indicate that sleep is not entirely physical in its origin, but depends upon a psychological basis.

ECHOES AND NEWS.

NEW YORK.

Appointment of Dr. Sobel.—Dr. Jacob Sobel has been appointed adjunct pediatricist to the Sydenham Hospital.

City Death-Rate.—The death-rate for last week was 16.87 per thousand; in the corresponding week of 1900 it fell to 16.74. Last week's deaths from cerebrospinal meningitis numbered only 72, as against 83 in 1904.

Manhattan Eye and Ear Sells.—The Manhattan Eye and Ear Hospital, the new buildings of which institution are now being erected on Sixty-third and Sixty-fourth streets, east of Third Avenue, has sold its property at the southeast corner of Park Avenue and Forty-first Street, for about \$420,000.

Mount Sinai Hospital Alliance.—The Mount Sinai Hospital Alliance has elected the following officers for the year: President, A. M. Fechheimer; First Vice-President, Max L. Schallek; Second Vice-President, Aimee C. Sampter; Recording Secretary, Leon Huhner; Corresponding Secretary, Nina Maehler; Treasurer, Milton M. Stiner, and Directors, Theodore Long, J. M. Levy, Benjamin Manilla, H. C. Dessauer, F. F. Steinhart, Max Emanuel, S. Phillips, E. A. Friedenreich, C. Bretzfelder, R. J. Gerstel, Carl Jacobs, Daisy C. Bader, Josephine Rosenbaum, Emily Amson, and Horstense Schilt.

Mt. Sinai Hospital's Work.—More than 2,750 free patients were admitted to Mt. Sinai Hospital in the year ended November 30, 1904, according to the president's report issued recently. The total number of those treated was 3,679, not including 1,022 referred to the dispensary. The institution had a balance of only \$1,195.51, cash on hand, at the end of the year. Among the gifts received were \$10,000 from E. Asiel, \$18,830 from Adolph Lewisohn, and \$2,877.03 from Henry L. Einstein. The new buildings, at one Hundred and First Street and Fifth Avenue, were dedicated fourteen months ago, having cost, including the equipment and site, \$2,752,565.91. Natives of Russia were a plurality of the year's patients, with American-born citizens next in number and Austrians third.

Stony Wold.—A second auxiliary in Brooklyn of the Stony Wold Sanatorium for the treatment of incipient tuberculosis has been organized, with the following officers: Mrs. Thomas R. French, chairman; Mrs. Richard M. Dorsey, Mrs. Martin W. Littleton, Mrs. Camden C. Dike, vice-chairmen; Mrs. C. Hibbard, recording secretary; Miss Alice M. Chittenden, corresponding secretary, and Mrs. Whitney V. Newell, treasurer. The new auxiliary has begun active work by promising to supply the balance needed in order that a Brooklyn young woman, who stands a very good chance of being restored to usefulness by a term at the sanatorium, might at once be sent there, her family not being able to supply the full amount needed for her maintenance. An auxiliary has also been formed at Albany. Mrs. Samuel B. Ward was elected chairman, and Mrs. Gorham treasurer.

\$20,000 for Mount Sinai Nurses.—With the object of offering an inducement to the pupils of the Mount Sinai Training School for Nurses to obtain the highest possible proficiency, Mr. Murry Guggenheim has established a fund of \$20,000, the income from which shall be applied to create twelve scholarships of one hundred dollars each annually, subject to the following regulations and conditions: (1) Six of these scholarships to be assigned to Junior pupils, three to Senior pupils and three to members of the graduating class. By the attainment of suitable proficiency any nurse can secure

all three scholarships during the term of her tuition. (2) The scholarships to be awarded at the annual graduating exercises, taking place in May of each year, together with a pin for each graduating nurse securing one or more scholarships, engraved, "Murry Guggenheim Scholarship" together with the numerals indicating the year or years in which the scholarship was secured. (3) Scholarships to be awarded to those nurses in each class who shall have displayed the highest degree of proficiency in accordance with the existing method of rating. (4) The fund to be known as the "Murry Guggenheim Scholarship Fund."

Tuberculosis Exhibit.—A tuberculosis exhibition will be held in New York City in November. The National Association for the Study and Prevention of Tuberculosis and the committee on the prevention of tuberculosis of the Charity Organization Society have decided that, in view of the widespread interest in the subject of consumption, as shown by the large number of anti-tuberculosis associations forming in all parts of the country, and the increasing desire to provide better conditions for consumptives in many cities and States, it is time to gather together an exhibition which will show just what has been accomplished in this country and abroad in fighting the great white plague. The exhibition will be so arranged that it will present, through diagrams, photographs and models, a picture exhibition will be so arranged that it will present, of the progress being made in fighting tuberculosis, at the same time that it will show the need for much greater effort to bring the disease within the limits recognized by authorities as possible. Dr. Ernst J. Lederle, former Commissioner of Health in New York, is chairman of the committee in charge.

PHILADELPHIA.

Aid for Hospital.—Last Saturday evening a concert was given at the Academy of Music, the proceeds of which will go to the children's ward of the Methodist Episcopal Hospital. The audience was large and the affair was considered a success.

Post-Graduate Work at U. P.—The faculty of the Medical School of the University of Pennsylvania has announced that the post-graduate course in medicine was opened on May 15. The course will extend over a period of six weeks, and will be designed especially for practitioners who wish to study the latest departures in medicine. The course embraces nearly the entire field of medicine. Laboratory work will be one of the features.

Insects as a Spreader of Disease.—Before the American Philosophical Society, Dr. Skinner, of the Insect Department of the Academy of Natural Science, read a paper entitled "Insects in Relation to Disease." Dr. Skinner has studied this question for many years and is firmly convinced that many individuals are infected by means of insects with tuberculosis and, in countries where the disease abounds, with leprosy. The mortality of these diseases could be greatly reduced if the insects were taken to task.

Women Medical Students Receive Diplomas.—At the Woman's Medical College forty-two students received their diplomas. Among the number are found several foreigners, as Li Bi Cu, of China; Agavine Gibakian, of Constantinople; Blanca H. Hillman, of Santiago, Chile; Mary R. Wingham, of Ontario, Canada. The address was delivered by Franklin Spencer Edmonds and the diplomas by Mrs. Mary Munford, president of the board of corporation of the college. The graduates gave their annual dinner in the gymnasium.

Nurses Receive Diplomas.—The graduation exercises of the nurses training school of the Philadelphia

Hospital were held in the clinic, May 18. The twenty-eight graduates listened to addresses made by Dr. S. Solis-Cohen and Dr. Edward Martin, Director of the Department of Health and Charities. The graduation exercises of the Philadelphia Lying-In Charity were held in the New Century Drawing Rooms. The twenty-two graduates were addressed by Rev. William D. Roberts. From the Presbyterian Hospital Training School eleven nurses graduated. The exercises were held in the Princeton Presbyterian Church and the address was made by the Rev. Joseph W. Cochran, of the Northminister Presbyterian Church. The Jewish Maternity Hospital Training School graduated five nurses. Dr. David Riesman delivered an address and Mrs. Belle S. Cohen delivered the diplomas.

Federated Jewish Charities of Philadelphia.—At the annual meeting of this organization Mr. Jacob Gimble pointed out that the federation now has 2,260 members, that the average individual subscription is \$77; that during the first year of the existence of the body, \$121,000 were collected; that during the past year it has been increased to \$127,506. The following appropriation have been made: Jewish Hospital Association, \$30,000; Jewish Foster Home and Orphan Asylum, \$20,000; Society of the United Hebrew Charities, \$28,200; Hebrew Educational Society, \$5,600; Orphan Guardian Society, \$4,000; Jewish Maternity Association, \$8,000; Jewish Immigration Society, \$800; Young Women's Union, \$9,500; Hebrew Sunday School Society, \$2,600; National Farm School, \$6,400; National Jewish Hospital for Consumptives, at Denver, \$3,000; Alliance Israelite Universelle, \$500.

Medical Society of the State of Pennsylvania.—The fifty-fifth annual meeting will be held in the Y. M. C. A. Building, Scranton, Pa., September 26, 27 and 28, 1905. The concessions committee of general arrangements for the fifty-fifth annual convention of the Pennsylvania State Medical Society beg leave to inform the profession that applications for space for exhibition purposes may be contracted for from this date until the time of the convention, which is to be held in the city of Scranton, September 26, 27 and 28, 1905, inclusive. This year's meeting is to be conducted in a manner somewhat out of the ordinary, both in the work of the various sections, as well as in the entertaining of the visiting members. It is expected that some of the most eminent medical men of this country will be guests of the Society, and by their presence will greatly add to the interest and attendance of this meeting.

North Branch of the Philadelphia County Medical Society.—At this meeting, which was held May 16, Dr. Henry Leffmann read a paper on the "Dangers of the Domestic Use of Illuminating Gas and the Means of Avoiding Them." He pointed out that the obnoxious odor of old-fashion coal gas was a safeguard in its use. Since the form of illuminating gas now used is odorless, its presence, if it escapes, cannot be detected. He suggested that the sale of inferior rubber hose for connecting gas stoves be prohibited by law, and that in no case should there be a stop-cock at the service end of the tube. Dr. W. M. L. Cotlin read a paper entitled "The Medicolegal Relations of Gas Poisoning." Dr. William S. Wadsworth spoke of "The General Characteristics of Gas Poisoning as Seen in Philadelphia." Mr. William McDevitt and Mr. Washington Devereux, Inspectors of the Fire Underwriter's Association, also spoke.

CHICAGO.

Tuberculosis Bill Vetoed.—A bill introduced by Mr. Glackin, appropriating \$25,000 for the erection of a sanitarium for the consumptive poor, was recently

vetoed by Governor Deneen. Several leading physicians have written the Governor, urging him to set forth the reasons for his action.

Cerebrospinal Fever.—The seventh death from this disease since the first of the year occurred in the County Hospital on May 9. The victim was another Italian immigrant, twenty years old; ill on arrival, May 7; removed from the train to hospital same day, and died forty-eight hours later.

To Open Children's Hospital.—The new Children's Hospital on the grounds of the County Hospital, which has cost the county \$80,000, and is considered the finest institution of its kind in the West, will be formally opened Tuesday, May 23. This hospital occupies 147 by 43 feet of ground, is three stories high, has 20 wards, and accommodations for 150 patients. Other features of the new hospital are: Isolation wards where patients are kept till the character of the disease is known; a large demonstration room; two dining rooms for convalescents and a reception room; room with south front, with one-half the exposure covered with glass to let in the sunshine; plate glass partitions above the wainscoting of all the wards, so that patients may be under the direct observation of nurses at all times; and a large porch, screened for safety, where the little patients may enjoy the air in pleasant weather. The building is strictly fireproof; 57 physicians are on call, with a staff of 12 nurses.

GENERAL

Appointment of Dr. Winn.—Dr. John F. Winn, of Richmond, Va., has been elected by its board of trustees, Professor of Clinical Obstetrics in the University College of Medicine of that city. He was formerly lecturer on obstetrics in the same institution.

Johns Hopkins Hospital Staff.—The resignation of Dr. Richard H. Follis as resident surgeon in the Johns Hopkins Hospital has been accepted. His successor is Dr. William F. Sowers. Dr. S. H. Watts has been made first assistant and Dr. R. T. Miller second assistant resident surgeon.

Plague in India.—Three-quarters of a million people have already died of the plague in India this year, according to figures furnished by Indian Secretary Brodric, in the House of Commons recently. The mortality from January 1 to April 1 was 471,744, while another 215,961 succumbed during the four weeks ending April 29.

Rhode Island Medical Society.—The ninety-fourth annual meeting will be held at eleven o'clock A.M., Thursday, June 1, 1905, in Masonic Building. The following program is to be presented: Paper by Dr. William E. Wilson, "Treatment of Inoperable Malignant Growths with Coley's Toxines." Paper by Dr. William J. McCaw, "The Physician's Medicolegal Responsibility." The annual address by President W. H. P. Faunce, of Brown University, "The Medical Profession in Modern Life."

St. Joseph's Hospital, Baltimore.—The Resident Staff at St. Joseph's Hospital for the ensuing year will consist of the following: Dr. J. M. Lynch, University of Maryland, '04, Resident Surgeon and Senior Resident (reappointed); Drs. Bernard J. Wess, Baltimore Medical College, '05; Sydenham Rush Clarke, University of Maryland, '05, Resident Physicians; Drs. Elmer H. Adkins, University of Maryland, '05; Frederick W. Davis, College of Physicians and Surgeons, '05, Resident Surgeons; Dr. H. C. Irwin, University of Maryland, '05, Resident Gynecologist. Drs. Wess and Clarke are Baltimoreans; Drs. Lynch, Adkins and Irwin are from North Carolina and Dr. Davis is from Connecticut.

Dr. Eugene H. Hayward has been reappointed Pathologist. Dr. H. E. Ashbury has been reappointed to have charge of the X-ray work. The Dispensary Staff will consist of Drs. John S. Fischer and Eugene L. Chutchfield, Physicians. Drs. Joseph E. Gately, Frank E. Brown and M. John Cromwell, Surgeons.

McGill University.—Sir William McDonald has made a final gift of \$50,000 toward the building and equipping of the McGill Students' Union. This brings the amount of Sir William's donation to the Union up to a total of \$185,000, not including his grant of a free site, which would make the total about \$230,000. The final steps in the proposed amalgamation of the medical faculties of Bishop's and McGill were taken at a meeting of the McGill corporation on Wednesday. The amalgamation will go into effect on June 30 next. McGill will confer the *ad eundem* degree of M.D., C.M., upon the professors, lecturers, and instructors of Bishop's medical faculty. The corporation also adopted a resolution submitted by the McGill medical faculty proposing full amalgamation of the faculty with the university. Heretofore medicine has been on a totally different administrative basis to that of the other faculties of McGill. The affairs of science, arts, and law have been conducted by a common office, with one registrar for all three faculties, while medicine has had an office and registrar of its own. Under the new arrangement all the faculties will now be administered from the main office.

Panama's Fight With Fever.—John Barrett, who recently gave up his post as Minister to Panama to become Minister to Colombia, arrived recently from Colon aboard the steamship Advance. He said that sanitary conditions in the Canal Zone were gradually improving under the efficient management of Dr. Gorgas, but that an "alarming condition existed in Colon, hitherto practically free of yellow fever." The engineering problems were secondary to the problem of sanitation. Of the 7,000 employees on the Isthmus, only about 5 per cent. were ill when Mr. Barrett came away. "Five new cases of fever were reported at Colon the day before I sailed," Mr. Barrett said. "There is no panic, but many employees have become frightened by the fever and have run away from it. It seems to me about as easy to live in Panama and escape the fever as it is to live in New York and escape pneumonia and automobiles. All the buildings in the infected district are fumigated and the workmen are sleeping under mosquito tents. It is going to be a difficult fight for the sanitary experts, but they will finally master the fever." Mr. Barrett said his personal relations at Panama with all in authority had been cordial; that his relations with President Reyes at Bogota, Columbia, were very pleasant and that Panama was in condition for the reestablishment of friendly feeling with Colombia. He hoped to accomplish something in the way of cementing the friendship of the United States and Colombia.

West Virginia State Medical Association.—The thirty-eighth annual meeting was held in the Board of Trade Hall, Wheeling, W. Va., May 24, 25 and 26. The following program was presented: "The Teachings of Failures," by Dr. F. L. Hupp, of Wheeling; "The Palliative Treatment of Prostatic Hypertrophy," by Dr. H. E. Sloan, of Clarksburg; "Preoperative and Postoperative Treatment of Surgical Cases," by Dr. J. E. Cannaday, of Paint Creek; "Appendical Abscess—Pathology and Treatment—Report of Cases," by Dr. S. M. Mason, of Clarksburg; "Injuries of the Head—Report of Cases," by Dr. Henri P. Linsz, of Wheeling; "Anatomical and Physiological Principles Involved in the Symptomatology of Brain Traumatism," by Dr.

J. Schwinn, of Wheeling; "Office Treatment of Rectal Diseases," by Dr. William M. Beach, of Pittsburg. Symposium on Pneumonia: "Etiology," by Dr. S. S. Wade, of Morgantown; "Pathology," by Dr. L. O. Rose, of Parkersburg; "Symptoms and Signs," by Dr. W. W. Thompson, of Charlestown; "Treatment," by Dr. L. D. Wilson, of Wheeling; "Tuberculosis," by Dr. J. W. Preston, of Keystone; "Pseudo-Membranous Croup," by Dr. S. W. Bush, of Parkersburg; "Cases and Experiences of Interest," by Dr. W. H. Sharp, of Parkersburg; "Diseases of the Kidneys," by Dr. M. McNeilan, of Parkersburg; "Rupture of the Bladder," by Dr. J. R. Cook, of Fairmont; "The Importances of Early Diagnosis of Interocular Lesions," by Dr. H. R. Johnson, of Fairmont; "Ficker's Diagnosticum," by Dr. L. O. Rose, of Parkersburg; "Drugs and the Diazo Reaction—A Communication," by Dr. William W. Golden, Elkins.

American Laryngological Association.—The twenty-seventh annual congress will be held in Atlantic City, N. J., June 1, 2 and 3, 1905, at the Hotel Chelsea. The following program has been arranged: "A Case of Nasal Hydrorrhea," by Dr. D. Bryson Delavan; "Partial Turbinatectomy followed by Acute Otitis, Mastoiditis, Sigmoid Sinus Thrombosis, with Extension to Internal Jugular Vein," by Drs. Chas. H. Knight and Jas. F. McKernon; "Further Report on a Case of Lupus of the Pharynx and Naso-Pharynx (Transactions, 1904, p. 123)," by Dr. Herbert S. Birkett; "The Treatment of Acute Inflammations of the Nasal Accessory Sinuses," by Dr. Thomas Hubbard; "An Intra-nasal Operation for Draining the Frontal Sinus," by Dr. E. Fletcher Ingals; "Exhibition of Sections of the Nose of Various Animals," by Dr. John M. Ingersoll. Symposium on Sinus Disease: What symptoms in diseases of the Nasal Sinuses demand radical surgical intervention? What have been the comparative results of conservative and radical methods of treatment? A series of ten-minute papers will be presented as follows: "The Maxillary Sinus," by Drs. Robert C. Myles and George A. Leland; "The Frontal Sinus," by Drs. C. G. Coakley and Wm. E. Casselberry; "The Ethmoidal Sinus," by Drs. John O. Roe and John W. Farlow; "The Sphenoidal Sinus," by Drs. J. W. Gleitsmann and T. Passmore Berens; "Deflection of the Nasal Septum in Children," by Dr. Arthur A. Bliss; "A Second Note on a Case of Sarcoma of the Nose," by Dr. J. Price-Brown; "A Further Study of Hay Fever, Clinically, with the Employment of Pollantin," by Dr. Alexander W. MacCoy; "Tonsillotomy, the Basis for the Treatment of Tonsillar Affections," by Dr. George B. Hope; "Gangrene of the Tonsil, with Report of Cases," by Dr. Charles W. Richardson; "Sequel to a Case of Epithelioma of the Larynx, Shown to the Association Two Years Ago (Transactions, 1903, p. 98)," by Dr. Walter F. Chappell; "Two Cases of Foreign Body (impacted) in the Oesophagus," by Dr. Gordon King; "Papilloma of the Larynx in Children," by Dr. J. Payson Clark; "Rest in the Treatment of Laryngeal and Pulmonary Tuberculosis," by Dr. W. Peyre Porcher; "The Relation Between Laryngeal and Pulmonary Tuberculosis," by Dr. Walter F. Chappell; "Complete adhesion of the Vocal Bands Following Tracheotomy After Diphtheria," by Dr. D. Braden Kyle; "Rogers' Modification of the O'Dwyer Treatment of Chronic Stenosis of the Larynx," by Dr. D. Bryson Delavan; (a) "Papilloma of the Nasopharynx Simulating Epithelioma," (b) "Fibroma of the Larynx in a Child of Three Years, Necessitating Tracheotomy; subsequent Laryngofissure for Removal Followed by Prolonged Intubation," by Dr. Thomas J. Harris; "A Case

of Laryngeal Diphtheria in an Adult (Necessitating Intubation) Complicating Cerebrospinal Meningitis," by Dr. William K. Simpson; "An Unusual Case of Edema of the Glottis," by Dr. Mayer. Executive session; unfinished business; election and installation of officers; adjournment.

New York Charity Legislation of 1905.—Homer Folks, writing in a recent number of *Charities* says that the New York Legislature of 1905 remained in session for a length of time unprecedented in recent years. The subjects under consideration which attracted a large degree of public notice were those pertaining to taxation, franchises, and the powers of railway and other corporations. A considerable number of important measures pertaining to charities were, however, considered by the Legislature at length.

Boards of Managers for State Hospitals.—Perhaps the most important bill of the session was that relating to the management of the State hospitals for the insane. A declaration in favor of the reestablishment of boards of managers was made by Governor Higgins in the columns of *Charities* of October 22, 1904, and repeated in his inaugural message. A bill was brought forward early in the session by the State Charities Aid Association and, after conferences with leading members of the Legislature and the Commission in Lunacy, was introduced in the Assembly by Robert J. Fish, chairman of the Judiciary Committee, and in the Senate by Jotham P. Allds, a member of the corresponding Senate committee. Numerous amendments, some of them of minor importance and some of them material, were made, the bill in its final form including, besides the propositions originally brought forward by the State Charities Aid Association, the various amendments to the insanity law desired by the Commission in Lunacy at this session. The bill, in its final form, passed both houses substantially without opposition. Among its principal provisions are the following. The boards of visitors, established in 1902, are abolished, and a board of managers is provided for each hospital. Each board of managers is to consist of seven members, of whom two shall be women. The term of office, after the first appointments, is seven years, the term of one member of each board expiring each year. The managers are to be appointed by the Governor, with the advice and consent of the Senate, and are subject to removal by the Governor after a hearing.

The present law, giving the Commission in Lunacy "management, direction and control of the State hospitals" is repealed, the commission retaining a general "oversight" over the State hospitals and the control of the property. The power to establish rules and regulations, now vested in the commission exclusively, is to be exercised by the boards of managers collectively, subject to the approval of the commission. The power now possessed by the commission, subject to the approval of the Governor, to transfer any of the powers and duties of a superintendent of a State hospital to another officer to be appointed by it, is abolished; and the power now possessed by the commission to transfer superintendents from one hospital to another is modified, so that such transfers can be made only when a vacancy occurs and upon the request of the boards of managers of the hospitals affected. The boards of managers have the "control and management" of the State hospitals except as to the powers explicitly conferred by statute upon the commission. They have control of the "internal affairs" of the State hospitals. They must investigate and determine the truth of charges made against the superintendent or any other officer or employee of the hospital. They are to meet

monthly, and the superintendent is required to submit a report on all important phases of the hospital management and upon any other matters required by the board. The appointment of a superintendent, now vested exclusively in the commission, will hereafter require the confirmation of the board of managers of the hospital for which the appointment is made. The superintendent, at present removable by the commission, is removable by the board of managers after a hearing, subject to the approval of the commission. The board may suspend the superintendent pending the final decision. The appointment and removal of the steward, who is the principal assistant of the superintendent in the business affairs of the hospital, now vested in the commission, is to be by the superintendent subject to the approval of the commission. The Commission in Lunacy is required to call a meeting of the superintendents of all the State hospitals at its office in Albany at least once in every three months, and each board of managers may send one of its members to attend such meeting. The per capita amount which may be expended in the construction of buildings for State hospitals is increased from \$450 to \$550. The two branches of the Manhattan State Hospital on Ward's Island, now practically separate hospitals, are consolidated. The qualifications required for the president of the Commission in Lunacy are restored to the form in which they stood for many years until changed four years ago, and require that he shall have had five years' actual experience in the care and treatment of the insane and an experience in the management of institutions for the insane. Plans and specifications for buildings, before adoption by the Commission in Lunacy, must be submitted to the board of managers of the hospital affected, which may consider them for not less than fifteen nor more than sixty days, and submit a statement of their opinions and suggestions in regard thereto. The final determination rests, as now, with the commission, subject to the approval of the Governor and the Comptroller. The commission is authorized to designate some one in its office as a central treasurer for all the State hospitals, but all bills, before payment by the central treasurer, must be signed by the steward and countersigned by the superintendent of the hospital for which they are incurred. Formerly, the superintendent was authorized to remove any resident officer. Under the law passed three years ago, the approval of the commission was required for any such removal. In the present bill this authority is restored to the superintendent, the approval of the commission being required only in the case of a steward. The position of purchasing steward for the four hospitals in or near New York City, created by the commission several years ago, is given statutory recognition, and the incumbent is made the resident steward of the Manhattan State Hospital. Being appointed and removable by the commission, he is as resident steward in a somewhat different position from other stewards, a fact which is to be regretted, but which seems inevitable if the position of resident and purchasing steward is to be combined in this hospital.

OBITUARY.

Surgeon HATTON N. T. HARRIS, U. S. N., died in Pensacola, May 19, of appendicitis. Surgeon Harris was appointed in 1887 as an assistant surgeon in the navy.

Dr. ERWIN FISCHER, one of Pittsburg's most prominent physicians, died May 21, after weeks of semiconsciousness and sleep. Five weeks ago Dr. Fischer, after a long, hard siege of work, practically collapsed,

and since that time until his death slept and dozed, being unconscious for periods of from four to seven days each, then waking only for a few minutes. Autopsy showed abscess of the brain.

Dr. JOHN W. BAYNE, of Washington, died suddenly, May 17, from suffocation as the result of an affection of the throat. He was President of the Medical Board of Providence Hospital and Professor of Clinical Surgery at Georgetown University. During the war with Spain he rendered conspicuous service as a Major and Brigade Surgeon. He was fifty-nine years old.

Dr. JACOB H. ASCH, one of the best-known German physicians in this city, died May 19, aged sixty-five years, at his home, 780 Lexington Avenue. He came to this country as a young man, having received his degree from the University of Berlin, Germany, in 1864, and settled down to the practice of his profession in this city after a brief residence in Philadelphia. At his death he held a commanding position in the profession at large, some of its leading members in this city being among his close friends and collaborators.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, May 6.

CENTENARY FESTIVAL OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY—A MARTYR OF SCIENCE—ANTI-ALCOHOLIC INTEMPERANCE—TUBERCULOSIS AND THE INDUSTRIAL CLASSES.

THE leading medical society of these islands, the Royal Medical and Chirurgical, will celebrate its Centenary Festival on May 22 and the two following days. The chief feature will be the admission of the Prince of Wales as an Honorary Fellow of the Society. This is considered a high honor for the Society. In this public association with the healing art the Prince is following a precedent set by His Royal father, who is a Fellow of the Royal College of Physicians and Surgeons. As such the King is entitled to practice medicine and surgery on any of his lieges who may choose to entrust himself to his ministrations. Edward VII., however—though his knowledge of certain departments of surgery is like Sam Weller's knowledge of London, "extensive and peculiar"—exercises the privilege *occidendi impune* (as Molière has it) which he possesses only on pheasants, grouse and deer. Newspapers of sufficient antiquity have set the example of quoting from themselves a hundred years ago; the Society follows this example in its own way by having an exhibition of books, instruments, portraits, etc., illustrating the state of medical practice and the personalities of the London profession a century ago.

The study of tropical pathology, which has already cost several valuable lives, has lately added another to its roll of martyrs. Dr. Joseph Everett Dutton died a couple of months ago, at Kosongo, in the Congo, where he had been sent by the Liverpool School of Tropical Medicine to study trypanosomiasis and tick fever. Dr. Dutton, who was only twenty-nine years of age, was a highly promising investigator, and had already done excellent work. In 1900 he went to Nigeria as a member of a scientific expedition, which, on its return, issued a report on antimalarial sanitation and a set of important monographs of filariasis. In the following year he went out to the Gambia alone. The outcome of that expedition was another report on malaria which has proved of great service to the colony. It was during that expedition that Dr. Dutton identified, in the blood

of a patient of Dr. Forde, medical officer of Bathurst, a trypanosome which had previously been found only in animals. Subsequently he detected the same organism in numerous other cases in the Gambia and elsewhere. This was the first trypanosome found in man, and the discovery has been an important factor in determining the etiology of sleeping sickness. Dutton described several other trypanosomes new to science. A report on sanitation, which he drew up as a result of a visit to Senegambia in 1902, was presented to the French Government. His last expedition to the Congo began in 1903, Dr. Dutton being accompanied by Dr. Todd and Dr. Christy, the latter returning home in June, 1904. Toward the end of 1904 the expedition had made such progress as to enable Drs. Dutton and Todd to demonstrate the cause of tick fever in man, also to prove the transference of the disease from man to monkeys. During these investigations both investigators contracted the disease; Dutton attributed his to inoculation in the course of a post-mortem examination. According to the last letter received from them, dated Kosongo, February 9, they were returning home in excellent spirits. The letter contains statements as to two new facts which seem to place the etiology of tick fever beyond question. One is that for the first time Dutton had succeeded in imparting spirillum fever to a monkey by means of the tick. The other, contained in a postscript dated February 12, is to the effect that a monkey had been fed after hatching—the ticks having been reared from naturally infected parents. At a special meeting of the Liverpool School of Tropical Medicine, held on May 4, a resolution was passed expressing the sense of the loss which science had suffered by the death of the brilliant young investigator and the loss to his colleagues by the removal from their midst of his bright and enthusiastic personality. The Congo Free State Government has also expressed its sorrow for the loss of "this devoted scientist, who succumbed to the fatigues of a philanthropic mission of the highest importance which he voluntarily undertook."

A great wave of what may perhaps be called anti-alcoholic intemperance is sweeping over the medical profession in this country. A few weeks ago a conference was held at which the use of alcohol in any form and for any purpose was condemned by Sir Victor Horsley with an ultra-vigor; his denunciations were re-echoed by Sir William Broadbent, and other high priests of the medical synagogue. Now, Sir Frederick Treves, evidently feeling it due to himself not to be outdone in this direction, has pronounced a curse almost as strong and as sweeping as that of Ernulphus, which the curious may find in that improving work, *Tristram Shandy*. Speaking at a meeting of the Church of England Temperance Society the other day, he declared that alcohol is distinctly a poison, the use of which should be regulated just as strictly as that of any other poison. It is, moreover, an insidious poison, producing effects for which the only antidote seemed to be alcohol itself. It is not an appetizer and even in small doses it hinders digestion. It profoundly modifies the nutrition of the body with the results that drunkards are ill-nourished. Its stimulating effect only lasts a moment and after it has passed off the capacity for work falls enormously. It brings up the reserve forces of the body and throws them into action, with the result that when they are used up there is nothing to fall back upon. It may be remembered that Treves was for two or three months in South Africa and his testimony is that on the march to Ladysmith the soldiers who were drinkers fell out

as though they were labeled. Dealing with the action of alcohol on nerve centers, he said the use of alcohol is inconsistent with surgical work or with any work requiring quick, keen, and alert judgment. He said that the use of alcohol is emphatically diminishing in hospital practice and among professional men who work hard during the day. The idea that a young healthy person wanted alcohol he pronounced to be preposterous; they might as well want morphine or strychnine. He concluded by saying that having spent the greater part of his life in the operating room, he could state that there were some persons he did not mind operating upon and others that he did, but the person whom of all others he dreaded to see enter the operating theater was the drunkard. About the same time, at a meeting of the Women's Total Abstinence Union, Mr. Vickerman H. Rutherford denounced alcohol as a great factor in national inefficiency, and he expressed a wish that doctors would cease to play down to public ignorance by prescribing alcohol in any form. A week or two ago there was a conference of physicians at Leicester, to hear an address by Dr. G. Sims Woodhead, Professor of Pathology at Cambridge. There, too, alcohol was denounced as the root of all evil, physical and moral, and one practitioner after another rose to express his agreement with the learned lecturer. It is all right enough, but it would be a good deal more edifying if the doctors followed their own virtuous precepts a trifle more strictly. When a physician who has been eloquent in prescribing alcohol as an unclean thing goes straight to the nearest bar and asks for an *apéritif*, which he follows up with a dinner where champagne and other wines flow freely, and even the deadly liquor is absorbed without apparent scruple or repugnance, one may perhaps be forgiven for not taking very seriously professions made on public platforms. It is the fashion just now to condemn alcohol, and even sensible men have to follow the lead of the fanatics. The difference between precept and practice is well illustrated by a story told of the late Sir Andrew Clark. Very likely your readers have heard it before, but it will bear repetition. Sir Andrew was an ardent apostle of temperance, and as he had a command of unctuous verbosity almost as great as Gladstone's, he was naturally much in request at teetotal meetings. A country doctor one day brought him a leash of patients for consultation, and the lion was so pleased with the proceeds of the morning's hunting that he asked the yokel to stay to luncheon and then accompany him to a meeting where he was to discourse on the evils of drink. The country practitioner was greatly impressed by what he heard, and expressed his approval in terms so flattering that the orator asked him to go home and dine with him. At dinner the guest was not a little surprised to be asked by the denouncer of alcohol to join him in a bottle of champagne. Another followed, and perhaps a third. At any rate the great man unbent so much that the little man ventured to hint at the inconsistency between his teaching and his practice. Whereupon the famous physician delivered himself to the following effect: "My dear fellow, I have a vast correspondence which I cannot possibly attend to till after dinner. I am then so tired that I cannot deal with it unless I have some champagne—and when I have had some champagne, I don't care whether I deal with it or not!"

A few days ago Dr. Arthur Latham, physician to St. George's Hospital, and author of the essay to which the Advisory Committee of the King's Sanatorium awarded a prize of \$2,500, gave an address on "The Industrial Classes and the Treatment of Tuberculosis."

He stated that in England and Wales there were 1,000 deaths every week from consumption and 2,000 deaths a week from all forms of tuberculosis. The annual loss from consumption in London alone might safely be put at \$20,000,000, and the total annual loss from all forms of tuberculosis at about twice that amount. Much of this loss came from the pockets of the industrial classes, and yet these classes were doing comparatively little to ensure themselves against it. Owing to the work of the National Association for the Prevention of Consumption, and of the consumption hospitals, the municipal councils had been stirred into action, and some of them even endowed a few beds in sanatoria. By this educational work the death-rate from tuberculosis had been largely reduced. They had to consider, however, how to cure those suffering at the present time from the disease. The great consumption hospitals should do more than act as educational centers. They might kill tuberculosis in another one hundred years by education, but they must consider the claims of the present generation. Hospitals in towns were not suitable for the cure of tuberculosis; they should be used only for the reception of cases which were waiting their turn to be admitted into the country institutions. It was imperative for the consumption hospital to be closely linked to sanatoria in the country. Could the industrial classes do nothing for themselves in this matter? He replied that the question was entirely in their own hands. The great friendly societies paid money to those members who were sick, but they took no measures to lead a man back to health, and they did nothing for the prevention of disease. He was sure that those societies would move as soon as they understood that they could really help, and he was the more certain of it because it could be shown that, by doing so, they would save their funds. The South London district of the Ancient Order of Foresters had lost in the last twenty-five years over \$55,000 from consumption. There was reason to believe that other districts and other societies had not lost less, so that the aggregate loss of all friendly and provident societies in the country must be considered. He asked the industrial classes to insist on the friendly and allied societies joining in the crusade against consumption. If they could establish sanatoria for workers and maintain these institutions themselves they would do much to lessen the sum of human misery, and he believed that some of them might live to see the day when the "great white plague" would have lost its hold on the land.

OUR PHILIPPINE ISLANDS LETTER.

(From Our Special Correspondent.)

THE PULAJANE RELIGIOUS FANATICS—THE WHITE MAN'S BURDEN—BINO AND PROSTITUTION THE BANE OF THE SOLDIER—LAUDABLE EFFORTS TO STAMP OUT VENEREAL DISEASES—DESIRABLE PROTECTIVE LEGISLATION IN ENGLAND AND AMERICA.

SINCE my last letter the Sheridan came south to bring a regiment which is to garrison this and other points in this Pulajane-ridden island. Your readers must not suppose that Pulajane is a new disease; perhaps 'twere better it were. No; Pulajane is the name of a set or sect of natives whose sole purpose is to make the life of the American invader (for so the Samarites look upon us) miserable. An innocent public at home is informed from time to time that a number of scouts and constabulary have been ambushed and killed by "the band of outlaws in Samar," band of outlaws being the euphemistic term used by

that honorable and expensive body known as "The Philippine Commission," to designate this excellently organized and daring body of upward of six or seven thousand men.

It matters not how these Pulajanes are designated, they necessitate the presence, after three years of civil government *à la* Taft, of a trained body of soldiers to help out in case the scouts and constabulary are about to be eaten up (metaphorically, of course) by aforesaid Pulajanes.

Calbayog is a fairly healthy post, I am told, as posts in the Philippines go, but heaven help any one who is compelled to spend a long time there, especially when peace, complete or comparative, reigns. The isolation and deadly monotony must indeed try men's souls. However, no complaint is heard from the officers; they invariably make light of the trials and discomforts of place and climate.

It makes not much difference, a casual observer would think, where one was stationed over here; his prayer might find expression in the words of Leontes:

"The blessed gods
Purge all infection from this air whilst we
Do climate here."

However this, by the way, so long as we must be bearing our part of "The White Man's Burden," the least the Government can do is to make life as bearable and surroundings as healthy in any given post as possible, and to their lasting credit, be it said, the powers "that be" have not spared, nor are they sparing, any trouble or expense to bring about such a consummation wherever soldiers are required to garrison.

Judging from the appearance of both officers and men of the infantry regiment which we are to take to America and which has been here two years, Calbayog has been for them an exceptionally healthy post, and indeed they tell me that other places should not be judged by this particular reservation since, notwithstanding the efforts of the Federal authorities, it is at most camps simply a question, as Shakespeare has it, of "holding sickness awhile at arm's length." Whatever statistics may show or be made to show (and we well know that they do not even lie truthfully) it is safe to say that in these islands, if it is not one disease it is another. The climate of Calbayog, for instance, is not insalubrious, but the number of prostitutes in the little town increased manifold with the coming of troops, and considerable venereal disease was ever present; for the women are easy of access, uncleanly in person, their surroundings filthy, and there is little, if any, control over them in the small towns as there is, for instance, in Manila.

As to this indiscriminate association of the men with the native women and all that goes with it, there is but one opinion: that the effect upon the man is singularly degrading. Among other things that "go with" this female companionship [*sic*] are the native drinks—bino, made from the nipa-palm, and tuba, a concoction from the flowering coconut tree. Now, the former may be bought for from fifteen cents a pint for the best, *i.e.*, the most insidious, to four cents a pint for the lower grades. Taken in large quantities it is a villainously poisonous form of "booze," and leads to partial or complete physical, mental and moral degeneration.

Such is the stuff the soldiers drink instead of beer, which costs in such towns as Calbayog twenty-five cents a pint, and can be obtained only in saloons which are invariably of the lowest type, and, of course, outside the military reservation. And so we get back to the "canteen" question. Before those misguided females of the W. C. T. U. succeeded in getting Congress to

do away with the canteen soldiers could get beer and light refreshments at a moderate cost and under decent conditions. The temperance cranks should be held responsible for the shocking wrecks which bino has made since our occupation of the Philippines as well as the great increase of drunkenness in the army everywhere.

It would be unfair to say that the natives encourage, by their actual example, overindulgence in native wine drinking, for, as a matter of fact, they are remarkably abstemious; nor does every soldier who imbibes become a bino fiend, but between the moral laxity he finds outside the post and bino indulgence his moral sense of proportion and of the eternal fitness of things becomes, to say the least, warped.

"The moral laxity" among the natives is, to our way of thinking, simply amazing. A man may get a girl from her parent or parents by paying a few pesos, and for a miserable sum occasionally keep her as "his girl" so long as he pleases. Illegitimacy is no "bar sinister," a religious or civil form of marriage being entirely superfluous, this being especially true in former times and before our occupation of the islands. As Hudibras says:

"They freely married where they pleased,
Did need no license nor no priest,
Nor friends nor kindred to assist,
To join in holy state of matrimony."

Every perverted notion of woman's relation to the opposite sex was the immediate result of such conditions; the moral atmosphere became badly tainted and is to-day. Such is the moral atmosphere the soldier breathes, and what with oversexual indulgence, bino, an utterly debilitating climate and much enforced idleness, a soldier is very likely to "run down," mentally, physically and morally. This is not my statement, it is that of a thoughtful and experienced officer of high rank, who has served five years in the Philippines and in many different places. Still another officer put the case thus briefly and forcibly: "I am inclined to believe that an officer or soldier, unless he exercises the greatest self-control, is liable, after some time in the Philippines, to give way at the point of least resistance; in other words, his weak spot, whether mental, moral, or physical, will find him out. Life is one constant restraint; food, drink and exercise must be taken in great moderation. If confined to a garrison the time hangs heavily, it merely 'ambles withal.' There is no diversion and (especially is this true for the private, no normal amusements) not even a library." A private talking to me along the same lines, said: "The idleness, the woful lack of amusements and of any social intercourse, such as we have at home, the want of a library, and indeed of any reading matter (most of the time) brings about a discontent and a 'home yearning' which may well drive the best of us to bino and other indulgences."

This man told me the rather illuminating fact that the arrests and fines for petty offenses were much fewer in his company than in others. He attributed this to the fact that through the exertions of the members of his company debating club a considerable fund was raised, which enabled them to subscribe to a large number of weekly and monthly periodicals. This little circulating library was a source of great comfort to the men, and helped to keep them out of mischief.

Here is a suggestion for the W. C. T. U., and indeed for other philanthropic organizations; they might present the soldiers of the American army with books instead of unnecessary and harmful acts of legislation.

I alluded above to the means taken in Manila to regulate prostitution and prevent the spread of venereal disease. I was glad to be able yesterday to take the matter up with Dr. Thomas R. Marshall, whom I have

mentioned before, and who has had so much to do with the cleaning up of this city.

It may be said with truth that the Board of Health has tackled this troublesome question in a manly and not a prurient fashion. Their viewpoint was the greatest good of the greatest number, and they allowed no silly Anglo-Saxon sentimentality to stand in the way. Of course, there was a howl at home from certain "babes and sucklings" in sanitary science and disease prevention. Well, here is the way they handle (to quote the "holier-than-thou" preacher of New York) the "social evil."

In the first place, the houses of prostitution are given a license, not as such, but as a second-class bar. The primary object of this particular form of licence is to enable the police and sanitary inspectors to enter at will, while it prohibits the sale of anything but beer and light wines. Secondly, following the practice in European cities, the houses are limited to a circumscribed section of the town, and houses, gardens, and streets are kept wonderfully tidy. This is seen to by the police and inspectors. Thirdly, reputable physicians, well paid, so that there may be no temptation to slur their work for "a consideration," examine the women in the various houses several times a week, and every one found with venereal trouble is taken to a hospital for treatment and is kept there until cured.

This hospital deserves more than passing mention. In the Spanish days such women were taken to the wretched Bilibid prison for treatment, where, indeed, the latter state of the poor creatures was worse than the first. Through the efforts of the physicians of the Health Board a roomy, attractive house was purchased, and converted into a receiving hospital for women of the town. I went through the same with Dr. Marshall, and cannot see that anything further could be done to make the surroundings more normal, cleanly and attractive. And not only are their immediate physical ills attended to, but sensible and well-directed efforts made to start the inmates on the way to a better life. It must be remembered that the prostitutes are not made up solely of Filipino and Japanese women, upon whom such efforts would be wasted; there are French, Swedish, German, Russian and some American women among them, a certain small proportion of whom are "gettable" from the esthetic side.

It goes without saying that such sensible and scientific regulation of this ever and all-over present question has greatly limited the spread of infection and cases of venereal disease, as it has in every country where stringent laws are enforced to that end.

I suppose that if we live a thousand years or so we shall get some such protective legislation passed in America and in England.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

*Twentieth Annual Meeting, held at Washington, D. C.,
May 16 and 17, 1905.*

FIRST DAY—MAY 16TH (Continued).

(Continued from Page 960.)

Recurrence of Ulcers.—Dr. Solomon Solis-Cohen, of Philadelphia, said that as yet we know nothing of the recurrence of ulcer after operation. Nor is anything known of the occurrence of ulcers after others have healed. An illustrative case is that of a carpenter who proved at autopsy to have only one active ulcer, though there were over thirty others that had been healed. Undoubtedly those who have a tendency to ulcer of the

stomach may very well develop another after the surgical treatment of the first one. Ulcer of the stomach often gives symptoms simulating other conditions. In a case recently seen the pain seemed to be in the region of the gall-bladder. When the patient began to vomit an operation was performed, and an ulcer was found just about to perforate. Healed ulcers often produce adhesions which may give the symptoms of an active ulcerative process by the limitation of the movements of the stomach which they cause.

Dr. B. W. Sippy, of Chicago, said that in not a few cases of ulcer of the stomach the anemia consequent upon the hemorrhage from the stomach will deter the surgeon from operating. In a recent case the hemoglobin as the result of repeated hemorrhages was only 20 per cent. The girl was extremely pale and restless, and consequently there was hesitation as to the operation. She went on to recovery.

Dr. Musser, of Philadelphia, said that hemorrhage from the stomach due to cirrhosis of the liver may simulate that from gastric ulcer and lead to unnecessary operation if operation be advised without due consideration. On the other hand, adhesions of the gall-bladder to the duodenum and stomach are not frequent as the result of cholecystitis. The history of the case will usually give some hint as to this. There has been a prolonged typhoid fever with symptoms pointing especially to the upper right-hand quadrant of the abdomen, and then a prolonged convalescence. This history helps to differentiate the condition from that of ulcer of the stomach.

Gastro-Enterostomy for Ulcer in the Stomach.—

Dr. Gilman Thompson, in closing the discussion, said that surgeons no longer look for the ulcer of the stomach if it is not readily found. The main thing is to give the stomach a rest from its ordinary function by doing gastro-enterostomy. At the same time this operation provides the best safeguard against a recurrence of ulcers. Undoubtedly it is in the course of ordinary function that ulcers come. If the stomach is not asked to perform its function ulcers will be avoided. In cases where adhesions simulate the symptoms of gastric ulcer the breaking up of these adhesions will relieve the symptoms. Surgery, therefore, can be looked upon as likely to do great good in doubtless cases. Dr. Thompson pleads only for more readiness on the part of the physician to refer these cases to the surgeon for exploration, as well as for curative operation.

Stomach Disorders and Diabetes.—Dr. John S. Sawyer, of Cleveland, said that in not a few cases of diabetes gastric symptoms are common, and these are usually considered to be the consequences rather than the cause of the diabetic condition. In a case treated some fifteen years ago, however, for motor stagnation of the stomach, after the employment of lavage, the patient improved so much that Dr. Sawyer resolved to investigate the relationship of stomach disorders and diabetes. Since then he has treated the stomach in nineteen cases of diabetes. Nine of these have been under observation for more than a year. In all a definite catarrhal process was found. All of them were helped by lavage. The sugar content of the urine was reduced, and the patient's general health always improved. One of them, a young man who had been passing 6 per cent. of sugar in his urine, and had become very weak, now takes a Sunday stroll of twenty miles for exercise. In all there was an almost immediate reduction of the thirst and of the polyuria. In all of them, too, there was reduction in the voracious appetite. Symptoms of restlessness and discouragement disappeared promptly.

Details of Technic.—Dr. Sawyer does not believe in the use of the siphon for gastric lavage with the patient in the upright position. The patient is always made to recline and the Politzer bag is employed. During the time that the alkaline liquid, boric acid or borax is in the stomach, the abdominal wall is manipulated so that the gastric mucosa may be thoroughly washed off. The treatment is not unpleasant to patients, and the relief is so prompt as to make them welcome further applications of it. It is not employed frequently, but at regular intervals, according to the amount of catarrhal disturbance of the stomach that is present. In Dr. Sawyer's experience only one death from coma has taken place, and that in a young man who drank to excess and had been on a big drunk.

Dr. Tyson, of Philadelphia, said that this method of treatment seems to be of great importance. Personally he has not noted active gastric disturbance in diabetes. Usually they digest very well. Some of the benefit derived from Fowler's solution in many cases, and the reason for which is inexplicable, may be due.

Dr. Kelly said, in continuing the discussion, that the important consideration with regard to this method of treatment is the question whether these cases were true diabetes or only forms of glycosuria. It is not to be expected after all that lavage of the stomach should have any effect on the organic basis of true diabetes.

Dr. Solomon Solis-Cohen, of Philadelphia, said that he had often noted that an increase of sugar in the urine occurred whenever there was intestinal indigestion with flatulence and discomfort in the abdominal region. Usually this disturbance was made better by washing out the bowels. Another important question is, does lavage of the stomach lessen the acidity of the urine? Is it because the fluid used in lavage is alkaline that the treatment benefits?

Dr. Sawyer said, in closing the discussion, that alkalines are of service in the treatment of diabetes, but that he does not consider that the use of the alkaline lavage is the main element in its therapeutic effect. In one patient, after intoxication, in which diabetic coma developed, no good was effected by lavage. Undoubtedly the cases were true diabetes in the ordinary sense of the word. Sugar was present in the urine in constant notable quantities, there was polyuria, voracious appetite, an intense tired feeling, and the cases gave the blood test of Brehmer.

Nux Vomica in Hyperchlorhydria.—Dr. John H. Musser, of Philadelphia, said that in cases where there is an excess of acid in the stomach it is usually suggested that sedatives be employed. In his experience, however, an overabundance of acid in the stomach has not yielded to this treatment. He has found, however, that nux vomica produces an excellent effect. Most of these cases occur in neurotic individuals. The remedy is given in ascending doses, beginning with fifteen drops three times a day until the physiological effect of the nux vomica is noted. The young stand large doses better than the old. Susceptibility of the action of nux vomica seems to me almost in direct ratio with the years. As a rule, the symptoms of the intolerance of the drug consists of some stiffness of the neck muscles and some tendency to vertigo. As a rule, patients are not given more than sixty drops three times a day. Some years ago Dr. Musser believed in the use of massive doses of nux vomica, but this seems inadvisable. The same effects are not obtained with strychnine alone as with nux vomica, and there seem to some important elements in the natural remedy which are not in the alkaloid. This, of course, has been pointed out by French therapists for some time.

Dr. Tyson said that he could only confirm what Dr. Musser asserted with regard to the benefit he derived from *nux vomica*, though he had not noted its good effects, especially in hyperchlorhydria, but in all forms of nervous dyspepsia.

Umbilical Hernia and Abdominal Pain.—Dr. D. D. Stewart, of Philadelphia, said that umbilical hernia is, in his experience, a frequent source of abdominal pain that is unrecognized unless careful search is made for it. Sometimes the umbilical hernia may consist of only a small nodule in the linea alba. Dr. Stewart has found them no larger than the size of a split pea, yet giving distinct reflex pains with digestive disturbances referred mainly to the stomach. As a rule, these hernia, when small, are utterly ignored by the patients themselves, and, of course, are not found by their physicians unless carefully looked for. Patients are usually treated for indigestion, gastralgia, gall-stones, or even for stone in the kidney or other serious conditions.

Abdominal Tumors.—Dr. Richard H. Cabot, of Boston, gave an analysis on over four thousand abdominal tumors which had been under treatment at the Massachusetts General Hospital during the last thirty-five years. The most interesting considerations are the very large number of tumors of the liver in this list and the comparatively small number of the cases of malignant disease. Another interesting observation is that cancer of the cecum is usually a slow running form of cancer. Many of the cases of cancer in the abdominal region ran their course with fever.

Dr. Fussell, of Philadelphia, said that slow running cases of cancer of the cecum are not at all unusual, and are sometimes surprising because, when discovered, they create the impression that a fatal termination is not far off.

Dr. Thayer, of Baltimore, said that malignant disease of the liver is usually accompanied by fever, and that in two cases of sarcoma of the liver which have been under his observation the clinical picture resembled very much that of typhoid fever with relapses. Cancer of the liver often presents fever with chills, and in a recently observed case, in a young woman under thirty years, the symptoms seemed to point rather to some acute affection of the liver. Exploratory operation showed the presence of a rapidly growing adenocarcinoma.

Dr. Cabot, in closing the discussion, said that undoubtedly if the Massachusetts General Hospital admitted all cases, and especially those suffering from tuberculosis, which are now excluded as far as possible, there would be more fatty liver so characteristic of tuberculosis and more amyloid liver.

Dilatation of the Cardia.—Dr. Frank Billings, of Chicago, said that three cases of spasmodic constriction of the cardiac orifice of the stomach were presented last year. In one of these cases the esophagus dilated above the stricture held 500 c.c. The patient had been taught to pass the stomach tube with good effect on her nutrition. By a procedure invented by Dr. B. W. Sippy, of Chicago, it seemed possible now to bring about proper dilatation of the cardiac orifice so that it would remain patulous. Dr. Sippy then presented the instrument he employs for this purpose. It consists of a small rubber bag into which a rubber tube is fastened and to which a bougie may be attached. By means of the bougie the rubber bag, which is surrounded by cloth, to prevent it from dilating above and below the stricture, is passed down to the strictured part, and then is inflated. After two dilatations one patient, who had constantly before this passed the stomach tube, has been able to take her food quite normally for several months.

Renal Calculus and Simulating Conditions.—Dr. D. D. Stewart, of Philadelphia, gave the details of some cases in which renal calculi gave unusual symptoms none of which referred to the kidneys, so that the presence of stone of the kidney or ureter unless examined especially with regard to this point is unsuspected. As a rule, the most important element of the diagnosis is the presence of many red blood corpuscles in the urine. At times, when the presence of stone is suspected, operation shows that only a stricture of the ureter is present or that there are adhesions around the kidney pelvis which cause the discomfort. In some of these cases the indications are only vague, but where the discomfort is considerable the abdominal incision which enables the surgeon to expose the ureter and the environment of the kidney is more advisable than the incision in the lumbar region.

Dr. Danforth, of Chicago, in the discussion, presented a large stone which had come from the bladder, several small stones which had come from the right kidney and one larger stone which had come from the left kidney of a young woman. All of these calculi had been present without the production of any acute pain.

Dr. Tyson said that a number of cases of stone in the kidney occur without symptoms and only the most careful examination and study of patients for a considerable period will reveal their presence.

Dr. Forchheimer said that in three cases of kidney stone there were no definite symptoms in his experience, and even the X-rays were of very little help.

Dr. Frank Billings, of Chicago, said that localized pain followed by the presence of blood in the urine is almost pathognomonic of kidney stone. The X-rays have added very little to the diagnosis of kidney stone. Mistakes are not uncommon, especially in the hands of X-ray specialists who are not physicians. In one recent case a specialist in X-ray work insisted on the presence of a stone in the bladder and the lady's husband was making preparations to have the operation performed, when it was found that the shadow was cast by a bulbous pessary in the vagina.

Dr. Stewart, in closing the discussion, said that peculiar shadows sometimes recalling the presence of stone in the ureter occur and that great care is needed. In one case the calcified tip of the appendix was taken for a stone during the X-ray examination. In all of Dr. Stewart's cases the symptoms had occurred over a prolonged period.

Amendments to Constitution.—The following resolutions were voted upon and adopted:

(1) *Resolved*, That Article II of the Constitution be amended by inserting after the first paragraph of this article a paragraph stating: There shall be a class of "associate members" limited in number to 25, from which class all active members shall be elected. These associate members shall enjoy all the privileges of honorary members and each of them shall pay annual dues amounting to one-half the annual dues of an active member.

(2) *Resolved*, That the Constitution be so amended that any one who has been an active member during ten years may, at his request, be transferred by the Council to honorary membership.

A third resolution, That the Constitution be so amended that honorary members elected or transferred hereafter shall be expected to pay annually five dollars as dues in consideration of receiving the printed transactions, was defeated.

SECOND DAY—MAY 17TH.

Proteid Diet.—Dr. L. F. Barker, of Chicago, said that the proteid digestion remains a mystery. Just why one person can take pork chops and enjoy them, while another is made intensely miserable, yet the second may take veal cutlets without any disagreement, while the first may find them intolerable, is something that science has no explanation for. Some recent studies on the chemistry of the proteids have seemed to throw some interesting light on some of these subjects. The albumin molecule consists of monamino, diamino, and amido nitrogen for the most part. The monamino acids form the largest part of this. Leucin and tyrosin are examples of this group, but many others have been discovered in recent years by means of Fischer's analytical methods. Fischer has suggested that in fifty years we shall be able to make albumin in all of its forms. This is very different from the creation of living proteids. What is considered in these studies is the basis of life, the simple building stones out of which the complex albumin molecule is built up.

Dr. Victor C. Vaughan, in discussing Dr. Barker's paper, said that, in his opinion, all the cells of living bodies are definite chemical compounds. This theory would not solve all the life problem, but its substantiation would go far eventually to make internal medicine a science instead of an art. In the meantime certain practical applications may be hinted at. There is no doubt that patients suffering from chronic parenchymatous nephritis stand certain proteids much better than others. Dr. Vaughn has endeavored to find out which proteids produce the least irritation of a disabled kidney, and some of his experiments have been most encouraging.

The Chlorides in Chronic Nephritis.—Dr. A. O. J. Kelly, of Philadelphia, said that certain salts, and especially the chlorides, are not eliminated in various forms of nephritis, and as a consequence of their retention they attract water and so lead to the occurrence of edema. French observers have found that the addition of chloride of sodium to the diet increases edema in parenchymatous nephritis. In nephritis of arteriosclerotic origin this was not true, hence they have suggested a reduction of the chlorides in the diet of nephritic patients. They consider that the explanation of why milk diet is so good for those suffering from nephritis is that there is much less chloride salts introduced into the system. The amount of excretion of chloride is no sign of chloride elimination, since there must also be a definite idea of the intake of chlorides.

Study of Cases.—Dr. Kelly has studied with Dr. Fife, of Philadelphia, the chloride metabolism of nephritics. The patients were sufferers from anasarca. In the first case the patient weighed at the beginning of the observation 203 pounds. When salt was removed from the diet he lost weight, the weight evidently going down as the result of loss of water. Later with the limitation of salt in the diet he gained in weight and in strength and was much better than he had been before. In the second case the results were not quite so favorable, but some beneficial effect was produced. Undoubtedly in some cases patients are rendered worse by injections of sodium chloride in solution or other ways of increasing the chloride contents of their tissues. In a third case the patient was in an advanced stage of nephritis and in the stools a considerable amount of sodium chloride was found. It

is evident that if any true idea of the metabolism of the nephritic patient in reference to the chlorides is to be obtained the stools also will have to be examined. Ordinarily there is very little sodium chloride in the stools and it has sometimes been considered that this element of the problem could be neglected, therefore. This investigation shows, however, that it cannot.

Conclusions.—Dr. Kelly considers, then, that there is definite evidence that sodium chloride is retained in the tissues of patients suffering from nephritis and that as a consequence of this there is also a retention of water. If put on a salt free diet many patients will undoubtedly be benefited, at least as regards the disappearance of their edema. On the other hand, the use of salt injections and of hypodermoclysis is inadvisable in nephritic patients.

Chloride Retention.—Dr. Billings read for Dr. J. L. Miller, of Chicago, a paper in which chloride retention in patients suffering from nephritis was made very clear. When salt is given there is an increase of the edema. The difficulty seems to be an increase in osmotic pressure. Hence in these cases the patient loses less water by perspiration and through the lungs. Dr. Miller's study was experimental on a series of cases to whom were given a certain amount of sodium chloride in order to determine what the effect would be.

Dr. Alfred Stengel, of Philadelphia, in discussing these papers, said that undoubtedly in Dr. Kelly's first case there was very great improvement. This, however, might have been due quite as well to his own therapeutic efforts as to Dr. Kelly's use of a salt free diet. As a matter of fact, there is no good index of the efficiency of the kidney at the present time. The presence of albumin in the urine does not furnish such an index, neither does the determination of the freezing point of the urine. It is possible that the elimination of sodium chloride may be a helpful element in this matter.

Dr. F. Kinnicutt, of New York, said that the salt free regimen had been tried at the Presbyterian Hospital, in New York, and had proven satisfactory.

Dr. Edsall, of Philadelphia, said that it is possible by giving sodium chloride in excess to overtax an incompetent kidney. Some patients react very well to an increased amount of salt, while others do not. Hence the importance of not advising hypodermoclysis for all cases irrelevantly. It is doubtful whether the retention of chlorides in the system will be of much diagnostic value.

Dr. Meltzer, of New York, said that the construction of this theory of chloride retention without any proper examination of the stools of patients investigated, shows how careless are some of the methods of investigation. Undoubtedly sodium chloride controls osmosis and this constitutes the main reason for the benefits observed in certain cases.

Dr. Kober, of Washington, said that many years ago Dr. Hughlings Jackson, of London, had pointed out that in pneumonia there was a retention of chlorides in the system. Later on, as a convalescence asserted itself, the chloride elimination was reestablished. It would seem as though the irritation of the kidneys by the toxins of the disease had produced an insufficiency of the kidney which prevented it from eliminating chlorides.

Dr. Cabot asked if there is anything in the present scientific knowledge of chlorides in the system to discountenance the use of large amounts of salt which is a fad with some people.

Dr. Sternberg said that an officer of the army had once filed a report with him claiming that he himself had been cured of serious nutritional disturbances by removing all salt from his food and had had good success in the treatment of others in the same way.

Absence of Salt in Epilepsy.—In answer to a question from Dr. Jacobi, Dr. Joseph Collins, of New York, said that in twenty-five cases of epilepsy under observation for the last two years on a diet free from salt there had been a reduction of the frequency and severity of attacks of epilepsy amounting to over 35 per cent. of improvement. These patients were one-third better than they had been under the most scientific treatment for epilepsy known before this time. A salt free diet is then one of most important elements in the treatment of epilepsy. With regard to salt for the normal individual it would seem as though he can abuse his appetite for salt with impunity just as he may abuse his appetite for other things. Once a certain amount of kidney incompetency is established, however, then he has to be careful of the amount of salt used.

Dr. Kelly, in closing the discussion, said that he did not know what effect was produced on healthy persons by the presence or absence of salt in the diet. Undoubtedly some sufferers from nephritis are benefited by the removal of most of the salt from the diet. It must not be forgotten that when there is retention of the chlorides and when the kidneys seem to be impermeable to sodium chloride to a large extent they may still be quite permeable to such substances as methylene blue and to the phosphates. The diarrhea of nephritis patients may be helpful in removing the sodium chloride from the system. The suggestion has been made that dairy-men might withdraw salt from the diet of cattle and thus produce a salt free milk for the diet of nephritic patients.

Toxicity of Bile.—Dr. S. J. Meltzer, of New York, said that there have been many changes of view with regard to the toxic quality of bile. At first it was considered to be surely toxic; then the toxic symptoms were attributed to the impurities of the bile, and filtered bile was thought harmless. Later it was concluded that convulsions were sometimes caused by the injection of bile. More recent investigation has shown that it is rather coma that is produced. In very small doses bile produces convulsions in frogs, but larger doses produce fatal coma. When combined with strychnine, however, there is always a tendency to tetanus. Dr. Meltzer, in conjunction with Dr. Salant, has shown by a series of experiments that apparently there are two principles, one a convulsant and the other a coma producing substance in bile.

Cholemia and Uremia.—Dr. Meltzer said that formerly cholemia was considered to be due to an intoxication from the absorption of bile. As convulsions were not infrequently produced, however, it came to be considered that bile was not the most active agent, since bile produces coma instead. These later observations, however, show the presence of a convulsive element in bile. Studies in uremia seem to show, in Dr. Meltzer's opinion, that the uremic convulsions are really due to a loss of the equilibrium between poisons produced in kidney metabolism and liver metabolism which is always present in health.

Dr. Ewing, of New York, in discussing the paper, said that lesions in the liver are not uncommon in uremic conditions. Virchow first pointed out their occurrence. Dr. Ewing has been collecting livers

from cases of uremia with the idea of determining how much cholemia there may be in uremia. His investigation has shown that there is probably much more than was formerly thought.

Dr. Cohen, of Philadelphia, said that there are many poisons produced within the system, and that uremia is perhaps a failure of the internal neutralization of these poisons.

Dr. Carroll, of the Marine Hospital Service, said that fatty degeneration of the liver, so common in yellow fever, is undoubtedly the cause of the comatose condition which develops in this disease. Undoubtedly puerperal eclampsia in many cases is not due entirely to the kidneys, but also to the liver. This Dr. Carroll has found confirmed at autopsies.

Xanthelasma and Chronic Icterus.—Dr. T. B. Fletcher, of Baltimore, reported three cases of xanthelasma which had developed as the consequence of chronic jaundice. The yellowish patches of xanthoma had come on in the course of the liver affection. In the first place, the patient suffered from typhoid fever three years ago, which was followed by a relapse and the occurrence of cholecystitis. Two years later she suffered from the characteristic symptoms of gall-stones in the common duct. Considerable jaundice developed and persisted. During this time she developed patches of xanthoma on the palms of the hands with the characteristic yellowish chamois leather-like appearance. This affection also invaded the joints of the fingers, the elbows, the axillae and the neck. She was operated upon for the gall-stones, and they were found to be in the common duct and removed. This was over a year ago, and a recent report from her shows that the xanthomata have all disappeared, though she had the affection in the form of nodules, as well as the flat variety. In the second case the patient suffered from jaundice for eight years, and the xanthoma developed on the palm, on the flexure of the elbow, then on the extensor surfaces of the joints, and finally in the shape of nodules on the buttocks. She also had them on the eyelids. Operation was refused, and at the autopsy gall-stones were found. In the third case the patient was a sufferer from hypertrophic cirrhosis, with jaundice for two and one-half years. For over a year she has had xanthoma of the eyelids. The connection between these liver spots, as they are sometimes popularly called, and affections of the liver was first pointed out by Addison and Gull. There are, however, two types of the affection. The first occurs before puberty and is congenital and inherited. The second occurs after puberty and in four-fifths of the cases is associated with chronic jaundice. Usually the affection is painless, unless considerable pressure is applied to the spots, and there are few subjective symptoms. The most interesting feature of the disease is the fact that it develops quite symmetrically in both cases. After it has once developed it rarely disappears, though in one of Dr. Fletcher's cases there is such a disappearance. Xanthelasma, as it occurs in diabetic patients, usually disappears with the disappearance of sugar in the urine. The patches are found to consist on histological examination of a number of large multinuclear cells in the corium at the part affected. Evidently these cells are due to irritation, though by what pathological process they are directly produced is unknown.

Dr. Jacobi said that these yellowish patches which occur on the lower eyelids of the elderly seem to have some other origin. They recur if removed.

Dr. Fletcher, in closing the discussion, said that in

old people on the lower eyelid there are sometimes fibrolipomatous patches which are not true xanthoma.

Calcareous Degeneration.—Dr. Adami, of Montreal, demonstrated by lantern slides the stages of calcareous degeneration in the aorta. At first soluble soaps are present, then insoluble calcium soaps are produced, and finally there are fatty and calcareous degenerations in further forms. In practically all individuals over thirty there is some tendency to the occurrence of degenerative patches in the aorta.

(To be Continued.)

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.

FIRST DAY—MAY 18TH.

THE first session of a general meeting was held before an audience of about one thousand people, in the hall of the Willard Hotel. Addresses were made by the President of the association, Dr. E. L. Trudeau, of Saranac Lake, N. Y., and by the Vice-President, Dr. Wm. Osler, of Oxford, England, and Dr. Hermann M. Biggs, of New York.

Presidential Address.—Dr. Edward L. Trudeau, of Saranac Lake, N. Y., said that it was one of the proudest privileges of his life to preside at the first meeting of the National Association for the Study and Prevention of Tuberculosis, an honor that has been entirely unexpected, and that would be a source of satisfaction to all his after-life. The great white plague had been looked upon as a sort of fate, and had been faced with an Oriental fatalism that prevented its proper care and prevention. People passed by on the other side, and thought improvement hopeless. The discoveries of Villemin, of Koch and Cornet, showed tuberculosis to be a communicable and therefore a preventable disease. As the result of these discoveries, proper measures for the prevention of its spread had been taken, and as a consequence there was a reduction in the death rate all over the world. This might have seemed impossible even ten years ago, but has been accomplished by cooperation. The United States is now in touch with the vast international antituberculosis movement, and much may be expected for the benefit of its people.

Means Suggested.—The first means for the improvement of present conditions is the education of the people. The second means, that of the State. If everyone knew how great a diminution of the death rate had already been accomplished, and how much more could be accomplished, then there would be a demand for legislation that could not be resisted. As the result there would be better hygiene for the masses, which must constitute the basis of all tuberculous crusade work. The teaching in the public schools must be rather with regard to hygiene than tuberculosis itself, since otherwise, fantastic ideas of the danger of tuberculosis are apt to be acquired. Just where the danger lies must be taught, and then prevention secured. For any further improvement the most necessary condition is the early detection of the disease. For this physicians and people must be aroused to the necessity of taking the disease in time.

Vampire Quackery.—Dr. Trudeau said that the spread of education would help to crush the vampire of quackery, which now allures the poor under the mask of philanthropy and even of science. In this way precious time is lost, and the disease, from

being mild and curable, eventually becomes incurable. Undoubtedly one of the duties of a National Association for the Prevention of Tuberculosis must be to bring the quack offenders against the public weal to justice. At the present time physicians need to be able to recognize incipient cases with more certainty than before. The features of incipient tuberculosis must be taught in the medical schools, for the student is apt to think only of advanced cases. Further researches are needed, too, for the purpose of securing more exact methods of diagnosis, and perhaps even of treatment, or measures for the prevention of the disease. Fortunately, the era of original research is beginning in America, and much may confidently be expected.

Education With Regard to Tuberculosis.—Dr. William Osler said that there are two features of knowledge, one its acquisition and the other its application. At times the amount of knowledge on a subject may be so enormous as to be embarrassing. As the Poet Laureate said, "Knowledge comes, but wisdom lingers." There are three classes who need education with regard to tuberculosis: the public, the medical profession and the patient. The public may now be said to be awake to the situation with regard to tuberculosis, awake and sitting on the edge of the bed, but needing to be dressed in the garments of applied knowledge. For the further education there are three duties: First, the enactment of good laws; second, the proper care of early tuberculosis cases, and third, the care of hopeless cases.

Good Laws—New York Laws.—Dr. Osler said that the synonym for good laws with regard to tuberculosis is New York laws. In spite of the frivolity and size of the great city it has secured excellent legislation with regard to tuberculosis, much of which is due to the distinguished vice-president of this association, here present on the platform. New York has set the pace for others, and is an exemplar that may well be studied. With regard to the care of early tuberculous cases, this may be accomplished by private or public beneficence. Undoubtedly it constitutes an important public duty at the present time. The care of hopeless cases is, however, the most important matter for the public, since it is from these that the disease spreads with greatest intensity.

Education of Profession.—This is quite as important as the other phases of the tuberculosis problem, and the most serious need is the early recognition of the disease. Far from being easy, this is a difficult problem. The profession has not always recognized this fact, however, and open confession is good for all. The education must begin with the medical students, who must be taught to recognize incipient cases. Unfortunately, the whole problem of the teaching of infectious diseases is becoming serious. Institutions for these diseases near medical schools are needed, but as soon as an attempt is made to erect one, public opinion is up in arms. This is unfortunate. Acute cases of tuberculosis should at least be seen in the hospitals of medical schools, and they usually get there unrecognized in spite of the most careful supervision. Early cases of tuberculosis should also be treated in such hospitals in order to show what can be done for them. Excellent results can be obtained, and the lesson is an invaluable one for nurses. There should be a tuberculosis dispensary in connection with every large hospital, for the sake of its educational value. Tuberculosis patients should be encouraged to come, and district nurses should be supplied to visit their homes.

Education of Patient.—This is often a most trying factor in the treatment of early cases. The friends of a patient say, "For heaven's sake, don't tell that girl that she has tuberculosis, or it will surely kill her." There is no greater mistake than the keeping from the patient of a full knowledge of her condition. (Applause.) The discipline necessary in order to carry out the measures required for open-air treatment will be easy if the patient realizes the danger that is ahead. The depression will last only for a time, and the reaction is good. In closing his address, Dr. Osler said that Dr. Trudeau's work had been an inspiration to all, and his courage, under circumstances that few could have overcome, is the admiration of all those who know it. He has the boundless enthusiasm of the true scientist for study. His work mainly has transformed the Adirondacks from the forbidding wilderness it was when he went there into the great homing place for the ailing. While teaching the world all that can be accomplished by personal, loving, affectionate care of patients, he has also shown the true humility of a great man.

Infectious Disease Hospitals.—Dr. Hermann M. Biggs, of New York, said that he could not introduce his remarks better than by a discussion of the question of the supposed dangers from infectious disease hospitals. On North Brother Island, in New York City, all the infectious diseases of the city are housed, and with them from 70 to 80 cases of tuberculosis. The wards for the tuberculous are not more than 30 feet from the pavilion in which scarlet fever and diphtheria are under treatment. There is little restriction of movement. This has continued now for more than two years, and not a single infectious disease has been transmitted to a tuberculous patient. The public outcry against the erection of infectious hospitals still continues, however. On Manhattan Island the reception hospital for infectious diseases is within 400 feet of the most densely populated region on the globe. Notwithstanding this, there has never been a single case of the communication of an infectious disease to this surrounding tenement-house population.

Enforced Registration of Tuberculosis.—There is agreement now that enforced registration of tuberculosis is advisable. Except in New York, however, and a few smaller cities, it is not enforced. Many cities have laws in the matter but no action is taken. In New York the Board of Health has an advisory board, consisting of the most prominent physicians in the city. These give confidence and enlist the earnest cooperation of other physicians, since it is known that health regulations are agreed to by them. Another method that has been found to make registration easier in New York, is the free bacteriological examination of sputum. This gives a return to the physician for the trouble of reporting his tuberculous cases. The first year only 500 specimens were examined. Last year 17,000 specimens were examined. This year, according to present statistics, over 20,000 specimens will be examined. There are 250 depots for the collection of sputum, to make the physicians' work easier. While it is required to report the disease, it is not considered contagious, but only a communicable affection. It is insisted that there is no danger if simple precautions are taken. In 1904, 19,000 cases of tuberculosis were reported, some of them, of course, duplicates.

Registration Regulations.—Registration to be successful must have certain safeguards. It must not involve publicity. The Board of Health does not communicate directly with the patient. The commu-

nication is with the physician, who is asked to give his patient the information that the Board of Health considers necessary for the prevention of the spread of the disease. The physician is also asked to notify the Board of Health if the patient gives up treatment, or removes from one portion of the city to another, or from one house to another. This is to enable the Department to carry out proper measures of disinfection. In this way physicians have gradually come to recognize that the Board of Health can be a help to them, and is not merely a bitter-some city department requiring more work. Every year sees more and more ready cooperation between the medical profession and the authorities in these matters. In time statistics will be able to show exactly the condition and the location of cases of tuberculosis, and to recognize where the greatest danger of contagion is, and consequently to control it.

Dr. Biggs, in closing his address, added his compliment to that of Dr. Osler, for the distinguished president of the Association, Dr. Trudeau, who has done so much to enable the work of public education in America with regard to tuberculosis to be carried on successfully. His demonstration in this country of the curability of the disease is one of the most encouraging aspects of the American scientific work on this subject.

CLINICAL AND CLIMATOLOGICAL SECTION.

In the absence of Dr. Norman Bridges, the Chairman of the Section, Dr. S. G. Bonney, of Denver, the Secretary, presided.

Turban's Scheme of Classification.—The first business was the presentation of the report of the Committee on Clinical Nomenclature. They recommended the adoption of Turban's scheme of classification and description of patients for the purpose of comparative statistics. At present the variety of terms used do not allow medical men to know just what is intended by colleagues in the description of cases of tuberculosis. Turban's scheme is very generally employed abroad and with some modifications will doubtless prove a source of time-saving as well as a help to the avoidance of confusion. It is suggested that all who discuss cases of tuberculosis should make use of it in order to make their writing more definite and more generally available for statistical purposes.

Turban's Scheme for a Method of Comparative Statistics for Pulmonary Tuberculosis.—Suggested for use in the National Association, with the addition of the scheme offered by the Committee:

(1) Extent of disease in the lungs? I, II, III.—For exact definition, see below.

(2) How long consumptive? Period to date from the observation of the first clinical symptoms, e.g., stubborn coughing, hemoptysis, pleurisy, loss of flesh, etc.

(3) General condition of the patient? A, X. A—favorable; X—unfavorable.

(4) Digestion? B, Y. B—unimpaired; Y—impaired?

(5) Pulse? The pulse is to be registered every morning and evening, the patient resting.

(6) Temperature? F, f, t, n. F—maxima for the day over 101° F.; f—maxima for the day from 99° to 101° F.; t, n.—normal temperature (mouth).

(7) Tubercle bacilli? +, O. +—tubercle bacilli present; O—tubercle bacilli absent.

(8) Tuberculous complications? Name of the organ suffering from tuberculosis.

(9) Other complications? Name of the disease.

(10) Result of treatment? *Vide* Classification of Results of Treatment proposed by Committee on Nomenclature.

Definition of the Extent of Disease in Lungs; According to Turban:

I. Slight lesion extending at most to the volume of one lobe or two half lobes.

II. Slight lesion extending further than I, but at most to the volume of two lobes; or severe lesion extending at most to the volume of one lobe.

III. All lesions which in extent of the parts affected exceed II.

By "slight lesion" we understand disseminated centers of disease which manifest themselves physically by slight dullness, by harsh, feeble, or bronchovesicular breathing, and by râles.

By "severe lesion" we mean cases of consolidation and excavation such as betray themselves by marked dullness, by tympanitic sounds, by very feeble bronchovesicular, bronchial, or amphoric breathing, by râles of various kinds.

Purely pleuritic dullness, unless marked, is to be left out of account; if it is serious, the pleurisy must be specially mentioned under the head of "tuberculous complications."

The volume of a single lobe is always regarded as equivalent to the volume of two half lobes, etc.

Classification of Cases and Results of Treatment in Pulmonary Tuberculosis, to be used in Connection with Turban's Scheme, as prepared by the Committee:

Progressive (Unimproved). All essential symptoms and signs unabated or increased.

Improved.—Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

Arrested.—Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.¹

Apparently Cured.—All constitutional symptoms and expectoration with bacilli absent for a period of three months; the physical signs to be those of a healed lesion.

Cured.—All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

The disease is to be considered incipient and of favorable prognosis, if there is but slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe; if no tuberculous complications are present, and slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight); if there is slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest; if the expectoration is usually small in amount or absent, though tubercle bacilli may be present or absent.

* The disease is to be considered moderately advanced, if there is no marked impairment of function either local or constitutional; if the localized consolidation is moderate in extent with little or no evidence of destruction of tissue; or disseminated fibroid deposits and no serious complications.

¹ The length of time mentioned is, of course, somewhat arbitrary, but is intended to cover the cases, which frequently occur, where the patients leave a sanatorium for various reasons, contrary to advice, after a stay of a few weeks, although all active symptoms may have ceased completely soon after entrance.

The disease is considered to be far advanced if there is marked impairment of function, local and constitutional, or if the localized consolidation is intense; or if there are disseminated areas of softening; or serious complications.

Cured Tuberculosis.—Dr. Victor C. Vaughan, of Ann Arbor, Mich., in discussing the report of the committee, said that the word "cured" seems out of place in reference to tuberculosis cases which are not "cured." They become quiescent or are apparently cured. It would seem better then to substitute these terms which are nearer the truth. On the other hand, it appears advisable, in order to teach the medical profession to recognize tuberculosis at the earliest possible moment, to add designations to the classification for cases of the disease with no demonstrable lesions in the lungs.

Dr. De Lancey Rochester, of Buffalo, said that, to those who know the specimens of the autopsies, the word "cured" can scarcely have a place in the terminology of tuberculosis. On the other hand, it does not seem advisable to talk of cases of tuberculosis as arrested if bacilli are in the sputum, for they may become actively virulent again at any moment.

Dr. Linthacum said that there is now a general consensus of opinion that tuberculosis is curable, and to refuse to use the word "cured" is to deny this and lose all the favorable influence of the state of mind occasioned by its use.

Dr. Raeburn, of Washington, D. C., said that autopsies upon the old show the presence of tuberculosis in 75 per cent. of the cases, even when they do not die of tuberculosis. These cases have been cured spontaneously, and were not sufferers from the disease again, even though the remains of the lesions were yet in the lungs. It would seem but right to speak of these other cases as cured.

Dr. Minor, of Asheville, N. C., said that there is a pathological cure and a clinical cure. The former cannot be hoped for, the latter is often seen. If there are no symptoms of the disease for two years, then the use of the term symptomatic cure is perfectly justified.

Dr. Lawrence F. Flick, of Philadelphia, said that tuberculosis is curable, but to pronounce a patient cured after only two years' freedom from symptoms is often to tempt him to overtax his strength and bring about a relapse. It would seem better to make the term five years.

On motion the report of the committee was adopted as read.

Tuberculosis and Life Insurance.—Dr. Chas. L. Greene, of St. Paul, Minn., said that life insurance companies have much at stake in the mortality from tuberculosis. They are not philanthropic concerns, but even as a matter of business should be ready to show interest in the crusade against tuberculosis. The most practical way for them to do this is by aiding in the dissemination of the literature of the subject.

On motion a committee was appointed to consult the medical directors of life insurance companies on this matter.

Early Diagnosis.—Dr. Arnold C. Klebs, of Chicago, the Chairman of the Committee on the Early Diagnosis of Tuberculosis, presented an introductory report from the Committee, for the purpose of initiating discussion. The main points of the report were that except when tuberculous lesions are in communication with the bronchus, there is not apt to be any tubercle bacilli in the sputum. During

this, the closed stage, then, sputum is usually small in amount, and to refuse to make the diagnosis of tuberculosis, except when bacilli are present, is risky. Among the earliest symptoms may be persistent hoarseness, for which no reason can be found in the larynx, or disturbance of the general health, with symptoms not unlike those of neurasthenia. Hemoptysis is often a very early symptom of tuberculosis, and it must not be forgotten that at times, for weeks after its appearance, there may be no physical signs in the lungs.

Physical Condition.—The physical condition of the patient must always be considered as an important auxiliary for the diagnosis of tuberculosis. If the patient is not up to weight for height, or if there is insufficient expansion of the chest, these must be considered suspicious signs. The pulse is often disturbed at a very early stage, and the temperature is disturbed oftener than imagined. In order to be sure of the disturbance of temperature, a two-hourly record of the temperature range should be kept for several days. In taking the temperature, the thermometer should be placed in the mouth which should be kept closed for five minutes in a room of equable temperature. The instrument should be selected with care. In some cases fever will be found to occur only at times of disturbance of the ordinary physical condition, as by menstruation or after exercise. The Roentgen rays have not added very much to the diagnosis of early tuberculosis, though they may be of some assistance. Retardation of respiration is sometimes noted early in the disease, and disappears later when the patient has become accustomed to the condition, as it were. The excursions of the diaphragm are limited on the affected side after the affection has made some progress, and this can readily be recognized by the X-rays, but with quite as much satisfaction by percussion or by the observation of the Litten phenomenon, the shadow of the diaphragm on the chest wall.

Percussion.—Percussion is only of service if carefully done over the whole chest, comparing both sides at exactly corresponding points. In percussing the chest the lobe of lung over the heart should not be neglected, and in estimating the position of the diaphragm the blue pencil should be used, as otherwise no proper data for comparison can be obtained. Deep percussion should be avoided, as it brings out nothing of importance, and may serve to conceal superficial lesions. Besides it is a source of annoyance to the patient.

Auscultation.—Only careful auscultation will serve to give useful information in very early cases. Râles are often present in early tuberculosis, but not constantly present. As a rule, they are much more readily observed in the morning, and may be absent in the afternoon. They are present on damp days, but absent in dry weather. They may be heard immediately after the first long breath or two, but they then disappear. The râles are likely to be more frequent during menstruation than at other times. Special attention should be paid to the apices of the lungs, to the lower borders and to the axillary region. Rough expiratory respiration over a localized area is of special significance. The quality of the salts of iodine to increase catarrhal conditions and bring out râles where they are not otherwise present, may be used for diagnostic purposes.

Causes for Failures.—Dr. Edward G. Janeway, of New York, said that failures of diagnosis are always due to lack of care in the examination and to lack of re-examination. There is always danger in making

a negative diagnosis on one examination. Sometimes four or five examinations will be necessary for this. To tell patients that so many examinations are required, seems derogatory to their knowledge, to some physicians. It invalidates their position as a high priest who is able to say everything at once. Hemoptysis is undoubtedly in the great majority of cases due to tuberculosis. Physicians are too ready, as a rule, to suggest that it may be due to other causes. A striking case in Dr. Janeway's experience was that of an engineer of the Ward line of boats between the West Indies and New York. He died from yellow fever, and at the autopsy two foci of thoroughly encapsulated tuberculosis were found, one at each apex. The most careful inquiry did not elicit any history of tuberculosis at any time. After some questioning, however, his wife recalled that he had suffered from hemorrhage three years before, but had no further symptoms. Evidently his outdoor occupation has enabled him to throw off the disease. There is more danger of making too little of tuberculosis than too much.

Other Causes of Hemorrhage.—There are, of course, other causes of the spitting of blood. One of these is malingering. Dr. Janeway recalls the case of a student who pricked his gums to make them bleed, and as a consequence, was sent on a long vacation to Europe for the sake of his health. During war times, such experiences are not unusual. Mitral stenosis must not be forgotten as a prominent cause of hemorrhage, which in this case comes directly from the lungs, as if it were due to tuberculosis, though it is usually more streaky and less abundant than tuberculosis hemoptysis. Dr. Janeway considers hemoptysis as a life saver. After a pulmonary hemorrhage a patient will do anything recommended. And this enables the physician to secure the most complete cooperation. It must not be forgotten, however, that hemorrhage from the lungs may be due to specific disease. Dr. Janeway saw such a case some years ago in a young man with a history of syphilis, who was afterward carried off by an intercurrent disease, and at autopsy proved to have no tuberculosis in his lungs.

Late Diagnosis of Tuberculosis.—As a consultant to a sanatorium, Dr. Janeway has had his attention called particularly to the late stage at which many physicians of excellent ability and experience still send patients who are supposed to be suffering from incipient tuberculosis. Many of the patients prove to have the disease in a stage far beyond that which they are supposed to have, when proper for sanatorium treatment. As a rule, it is better to go on suspicion of tuberculosis rather than wait too long. In this it is better to be sure, for the patient's sake, than to be sorry. Many physicians are neglecting their patients' interest in not suggesting sufficiently early the necessity for careful treatment.

Combination of Symptoms.—Dr. F. L. Knight, of Boston, said that there is no single pathognomonic symptom of tuberculosis, and a physician can only judge, by the combination of symptoms. Where a number of signs, no one of which is absolutely certain, but all of which are suspicious, occur, then the diagnosis of tuberculosis is perfectly justified. Dr. Knight considers that tuberculin tells too much. It causes a reaction in case there are any tubercle bacilli, and it is possible that the lesion may be old and inactive, thoroughly walled off, while the symptoms which are arousing suspicion may be due to some passing condition.

(To be Continued.)

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, held February 14, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Fibroids as a Predisposing Cause of Cancer of the Uterus.—Dr. J. Riddle Goffe presented two specimens of cancer of the uterus associated with fibroids, which he thought suggested that the fibroids might be the irritating factor in the development of the cancer, thus corroborating the work of Cullen, who had discovered in many instances circumscribed cancer in the tissues immediately underlying the fibroid tumors, in others an altered condition of the epithelium which was suspicious of a precancerous stage.

Case I.—Uterus removed by double episiotomy and vaginal hysterectomy from a single woman, fifty-nine years of age. An intramural fibroid 3 cm. in diameter presents at the fundus and in the underlying mucosa is a localized flat-celled carcinoma.

Case II.—A uterus removed by abdominal hysterectomy from a 44-year-old woman, forty-five years of age, who had been spotting after intercourse for the past five months. Menstruation had been normal up to the last period which had continued for three weeks. The broad ligaments were not diseased, and no pelvic glands could be palpated. The uterine wall is more than double its normal thickness, and the endometrium is completely converted into cancerous tissue that extends down through the cervix and on to the posterior lip. There is a small fibroid at the fundus about 1½ cm. in diameter and the muscularis is studded with very small fibroids. In as much as the broad ligaments were free, he considers this case started in the body and extended downward to the cervix. Although the cause of cancer is unknown clinically we know it is primarily a local disease, and that chronic irritations causing nutritional disturbances are a predisposing factor, as the well-known relationship between lacerations of the cervix and cancer. In virgins where there is no other irritating factor present, the concurrence of fibroids and cancer, as in Case I, seems very suggestive. The practical application of this idea to treatment would favor the opinion he had held for the past two or three years, namely, that all fibroids should be removed regardless of their size, position and age of the patient, except in very old women. As illustrating the three methods of removal, Dr. Goffe presented three fibroids: (1) Polyp of the fundus, removed by vaginal section and hemisection of the anterior wall of the uterus; (2) a fibroid of anterior wall, 4 cm. in diameter removed by abdominal myomectomy; (3) an irregular fibroid of fundus with cystic and calcareous degeneration of both ovaries removed by supravaginal hysterectomy.

Dr. W. Gill Wylie, in the discussion, expressed the opinion that patients with fibroids are more likely to have cancer of the uterus, than those without such tumors, as the clinical history of cancer shows it invariably attacks organs that are defective, degenerated or injured. He does not believe, however, in removing all such tumors: very often a curettage relieves the symptoms, and all fibroids do not grow.

Dr. W. M. Polk asked Dr. Goffe if the carcinoma developed directly from fibers of the growth or from the mucosa.

Dr. Goffe said the pathologist was unable to demonstrate the exact place of origin, but that it did not grow from the fibers of the fibroid.

Dr. W. M. Polk, then said, if it is believed fibroids are predisposing causes of cancerous growth in tissues known to be the habitat of cancer, all these growths should be removed. As a matter of clinical experience,

however, the larger number of carcinomata are dissociated with fibroid growths, and few are willing to believe they are really beginning causes, nor in young women should they all be removed, meaning by that the removal of the uterus. The detection of one small fibroid, too, implies usually the presence of others, and in such minute forms of development it is practically impossible to pursue each and all for the purpose of removal.

Dr. H. J. Boldt thought Dr. Goffe had misunderstood Cullen's statements, which simply were a corroboration of the investigations of von Recklinghausen that there are myomata containing glandular structure, remnants of the Wolffian bodies, and from such elements cancer may start. This form, however, differs entirely from the variety under discussion, which does not, in his opinion, bear any causal relation to cancer. He has never had an instance of cancerous degeneration of a fibromyoma, although he has seen cancer and fibromyoma associated in the same specimen. He would only remove such tumors if giving symptoms, and by enucleation, if possible. Adenomyomata cannot be enucleated because they have no capsule.

Dr. Joseph Brettauer said that he considered the presence of carcinoma and fibroids in the same uterus to be a matter of coincidence, otherwise reports of secondary growths in other organs would be found; furthermore, considering the large number of supravaginal hysterectomies that have been done, the appearance of cancer in the remaining cervix would be more frequently seen.

Dr. A. M. Jacobus related the history of a patient, sixty-five years of age, who had an unusually large and hard fibroid polypus, projecting from the cervix, which from the offensive discharge made the diagnosis of malignant degeneration probable. A pathological report of a small portion of the tumor showed it to be a carcinoma. A subsequent report of the entire tumor showed it to be a sarcoma. A hysterectomy was refused, and now the entire lower portion of the uterus and vagina is involved in a rapidly growing mass.

Dr. H. N. Vineberg expressed doubt as to any causal relation between fibroids and cancer, otherwise recurrences would occur after their removal. If, too, one assumes that fibroids only occasionally become cancerous, one must remove every fibroid as soon as detected, and two of the oldest members have stated to-night that fibroids should not be removed unless causing symptoms—a position in which every consulting gynecologist will concur.

Dr. J. Riddle Goffe, in closing, said he had not asserted or attempted to prove that fibroids undergo cancerous degeneration, but that any irritation may be the exciting cause of cancer in tissues adjacent to the point of irritation, and as fibroids are points of irritation it is possible they may be exciting causes of cancer. The specimens presented to-night are evidences of this, and, although the causal relation has not been conclusively demonstrated, it seems better that such tumors should be removed, not necessarily by hysterectomy.

Rupture of Lower Uterine Segment with a Dilator.—Dr. H. J. Boldt narrated the history of a patient who had been dilated five hours previous to Dr. Boldt's observation preparatory to a curettage to stop bleeding following an abortion. A tear had occurred through the lower uterine segment upon the right side, followed by profuse hemorrhage and collapse. After partially rallying from the collapse, she complained of intense abdominal pain and vomiting and thirst. A laparotomy a few hours later showed a large quantity of fluid, clotted blood, and signs of a beginning peritonitis.

A branch of the uterine artery had been severed, and there was an extensive tear through the posterior reflexion of the broad ligament. A large hematoma had lifted the peritoneum from the anterior surface of the uterus; active bleeding had ceased and the right side of the pelvis was packed with gauze in such a way as to compress the vessels and to shut off the uterine cavity from contaminating the peritoneum. In spite of a saline infusion and extreme pelvic elevation, the patient died two days later.

Shock and Hemorrhage as Causes of Death Following Abdominal Operations.—Dr. Chas. C. Barrows stated that 5 of the 25 deaths in the second Gynecological Division of Bellevue Hospital during the past five years have been due to either shock or hemorrhage.

In the treatment of shock, he relies mostly upon the hypodermic use of strychnine and the introduction of salines into the circulation. He has also seen beneficial results from the intravenous injection of adrenalin chloride.

Deaths From Intestinal Obstructions After Abdominal Section.—Dr. Joseph Brettauer stated that in his own cases during the past 12 years, he had not had a single instance of this condition, due, he thought, to the strictly limited gynecological field of his material, and to certain methods of technic and after-treatment. Statistically, operations for removal of the appendages during the acute stage were most frequently followed by this condition. At that period of pelvic surgery in which the glass drainage tubes and the gauze packings were so commonly employed, it seems astonishing that ileus did not occur more frequently. From the typical picture of acute intestinal obstruction, he would differentiate a class of cases, occurring after an unavoidable and prolonged handling of the intestines, formerly called pseudo-ileus, but now more properly named "Paralytic-ileus." It may be due to an irritation of the inhibitory centre, or may be an initial symptom of septic peritonitis. The distention, nausea, possibly vomiting may be present; the pain, if due to paralysis, is not so severe as when due to sepsis, and is not so frequently recurring; but the differential diagnosis from sepsis is difficult. Prophylactic treatment should consist of short exposure to the air, avoidance of handling of the intestines and dry abdominal pads. The covering of raw surfaces with peritoneum, and the lowering of the patient to the horizontal position before closing the panical incision, so as to detect any possible displacement of the intestine through some opening in the intestine, are important means of prevention. In the after-treatment he does not think the time and manner of moving the bowels is of great importance, but he is still a firm believer in the temporary use of opiates in cases of paralytic ileus as well as in septic peritonitis.

Some Unusual Causes of Death Following Abdominal Operations.—Dr. G. H. Mallet, under the above title, reviewed the different causes of death other than those from infection, ileus, shock and hemorrhage. Non-septic pneumonia occurred seven times in 1,700 laparotomies recorded by Kelly; caused by the irritating effects of the anesthetic, or from inhalation of foreign matter. The prognosis is usually favorable. Nephritis is rarely a cause of death unless existing prior to the time of operation. He has had no case of his own. Although in hospital statistics deaths are frequently attributed to nephritis, the diagnosis is rarely verified, and if found on autopsy it had usually contributed to death only secondarily by reducing the resisting power of the tissues to bacterial invasion. Suppression of urine is usually due to ligation of the uterus, and has

been done by some of our most experienced surgeons. Two cases of tetanus, reported by Dr. Coe, were mentioned, the source of which was not determined in either case. Acute dilatation of stomach has been recorded by James Hunter as cause of death in a single instance. Apoplexy in a series of 1,800 laparotomies studied by the writer has been ascribed as a cause in two instances. Embolism, representing the most important unusual cause of death, occurred six times in the writer's series of 1,800 laparotomies. In three cases the operation was performed for uterine fibroids, in one for sarcoma of the uterus, in one for cancer of the ovaries, and in one for cystic degeneration of the ovaries. There were no evidences of femoral thrombosis or phlebitis in any of the cases. A case of Kelly's of typical pulmonary embolism in which symptoms of femoral thrombosis preceded the fatal attack was referred to. He thinks pulmonary embolism is so intimately associated with femoral thrombosis that the etiology of the latter condition should be of value. Clark's analysis of 41 cases of femoral thrombosis showed the condition may follow a simple abdominal operation almost as frequently as a grave one, and that it is not of infectious origin or from traumatism of the iliac or pelvic vessels, but is a direct continuation of a thrombosis arising in the deep epigastric veins, which grows slowly. Von Recklinghausen's theory of the mechanical disturbance of the circulation is considered by Clark to offer the best explanation of its cause. In the way of preventive treatment he referred to Byron Robinson's opinion that rest for forty-eight to seventy-two hours prior to operation, and more thorough visceral drainage will aid in preventing such accidents.

Dr. W. Gill Wylie, in the discussion, thought a very large proportion of the cases defined as shock are the result of hemorrhage that has occurred during the operation.

Dr. E. B. Cragin said that the improvements in technic during the past ten years best explain the lowering of mortality after abdominal operations. Skill in the administration of the anesthetic, the omission of drainage, the pains taken to cover raw surfaces with peritoneum, have all contributed to the improvement in the results.

Dr. W. S. Stone called attention to the possibility of doing something to prevent such accidents as embolism by longer observation and more careful preparation before operation, by rest in bed, and various hygienic and dietetic measures, particularly in the presence of fibroid tumors, in which degenerative changes in the kidney, liver and myocardium are so frequently present as a direct result of the presence of the tumors. He mentioned the so-called Mahler symptom, is an increased rate of the pulse without apparent cause, as a prodromal sign.

Dr. J. Milton Mabbott disagreed with Dr. Polk's statement that he doubts the possibility of rendering the vagina sterile. He believes that it has been demonstrated, at least in obstetric practice, that the vagina is usually sterile and the normal secretion is antiseptic, the gonococcus only resisting its germicidal action. He agrees with Williams that puerperal sepsis is always introduced from without, not always however, by the attendants, but occasionally by an access of contaminated air. The use of gauze drainage would also favor subsequent infection. He thinks asepsis can be more certainly attained by a rational use of antiseptics.

Dr. L. Grant Baldwin called attention to the frequent handling of instruments, to the presence of too many assistants, and to the matter of anesthesia, as important sources of complications after operations.

Dr. Wm. M. Polk stated he did not wish to imply that

any vigorous measures should be used to make the vagina sterile, as in gynecological work it is impossible, and such effort might destroy the normal resistance of the tissues themselves.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held February 9, 1905.

The Chairman, A. Bern Hirsh, M.D., in the Chair.

Drug Addictions.—A paper treating on this subject, was read by Dr. Luther C. Peter, in which he called attention to the low percentage of recoveries, being only about ten per cent. under the most favorable treatment. Etiologically the conditions were divided into two classes, hereditary and environmental; there being in all almost every instance a neuropathic temperament which is unable to withstand temptation. Hereditary taint, he stated, might not always indicate that a former generation had been addicted to the use of the drug, but might exist in various forms, such as epilepsy, insanity, dipsomania, drug habits, etc., the individual with a weak nervous system being particularly apt to resort to drug stimulation and for these the belief was expressed that there was but little hope of cure. Under a second class were considered those cases, which required a liking for the drug through medicinal employment, and under the third class, those, who while physically and mentally strong, in the stress of mental activity, probably involving loss of rest had employed them either as a stimulant or to induce sleep, which latter class are the most favorable for treatment. The writer then took up the symptomatology of the condition referring in the morphine and cocaine user to the obtunding of the higher ethical feelings, beginning with a desire to pervert the truth and gradually leading up to the commission of flagrant crimes. The various differential symptoms between morphine and cocaine users were then enumerated. In the treatment of the condition he considered as essential to success, the complete and thorough isolation of the patient, so that the attending physician may have absolute knowledge of the amount of the drug taken, the most favorable being a private sanitarium or hospital; and, in default thereof, a faithful and conscientious nurse constantly in attendance. If the amount used is not excessive, it should be completely withdrawn, but if this cannot be done, it should be gradually decreased and at the end of two weeks absolutely withdrawn, and during the first few days after withdrawal large doses of hypnotics should be given, including the bromides, sulphonal and trional, but excluding chloral on account of its depressing effect on the heart; hypodermics of codeine may be employed, and the mental effect hypodermics of cold sterilized water when necessary. Absolute rest, forced feeding, massage, electricity, heart and general tonics are requisites for success. Caffeine, he stated, he had found to be of assistance, and when morphine and cocaine are used together, the morphine may be continued until the cocaine is withdrawn. In conclusion, he urged the need of private sanitariums, and laws giving power to restrain these people thereat.

Chronic Alcoholic Poisoning.—This was read by Dr. A. C. Buckley, in which he divided the cases into two classes: (1) Those in which small quantities had been taken regularly for a long period, and (2) those in which large quantities taken at long intervals; and stated that upon the etiology must be based prognosis and treatment. The individuality of the patient should be considered, as the effect upon one is not the same as in another, and especially is a history of the

exact amount taken of value. Among the symptoms enumerated were general progressive tremor of speech, insomnia, fear of persecutions and delusions. He called attention to the liability of confounding the condition with locomotor ataxia and tabes, and also with chronic lead poisoning, in which he stated the palsy always began at the upper extremities first. The distinctions between the hallucinations in this condition and those in chronic drug poisoning were that in the latter condition they are usually more of a visual character, while here they are of an auditory character.

The chairman asked the question as to when a drug or alcohol habitue would become so incapacitated that he could not execute valid legal will.

Dr. George E. Price opened the discussion and in reply to the question of the chairman felt that the point would be reached when the patient crossed the borderline from a state of sanity into a condition of insanity. The speaker stated that he believed in a large majority of the cases there existed as a causative factor an underlying neuropathic temperament, which accentuated the depressing effect of the poison, and order of frequency in which insanity followed was stated to be (a) alcohol; (b) cocaine (c) morphine. He stated that the hallucinations might be either auditory or visual and distinguished between the cases in which each of these occurred. In the treatment of the morphine habit, he believed it to be best to withdraw the drug slowly unless a very small amount was taken, and then the treatment should be kept up until the patient is well physically. He stated that he had never found any drug that was exactly a specific and that each case should be treated symptomatically, and that atropine, caffeine and strychnine had been of value. As distinguishing differential factors between alcoholic paresis and general paresis were mentioned, sudden onset of the attack, arterial sclerosis, etc.

Dr. Max Bachrach stated that the differentiation between general and alcoholic paresis, while quite difficult was a very important one, although the symptoms are of much more rapid development in alcoholic than in general paresis. The treatment, he believed, should be directed chiefly to rest stimulation and massage.

Dr. Howard S. Anders believed that there were many cases in which the factor of chronic alcoholism was overlooked in the diagnosis. He felt that there was a great responsibility in reference to the giving of the various drugs resting on the profession, and directed attention to the large number of the habitués who were physicians, and particularly referred to the cases in which the habits both as regards drugs and alcohol had been contracted by administration as a medicine.

Dr. Wilmer Krusen referred to the case of a woman between sixty-five and seventy years of age, who had acquired the habit of taking 65 to 70 grains of antipyrin every day. He also referred to women subjected to abdominal operations who had become opium habitués owing to their sufferings, and the marked difficulty experienced in the postoperative treatment.

Dr. T. Turner Thomas emphasized the importance of the physician having absolute control of the patient, if he is to secure the best results and felt that a law providing for the compulsory detention thereof would be advantageous. He then discussed in detail the effect of alcohol upon patients subjected to surgical procedures, and also the wrist and ankle drop.

Dr. Frank C. Hammond referred to the case of a woman who had been under his care for some time, who works in the morphine packing room of a laboratory, who suffers about every four to six months from headaches, pains and diarrhea, for which symptom opium

is the only drug that gives any relief. She also states that on Sundays when she is away from work she feels very poorly and much better when she returns again on Monday. He also cited, as showing the necessity for very close observation of these patients, a case in which a morphine habitué, who had voluntarily committed herself to an institution for treatment, concealed the drug in hems in cuffs of her night dresses.

Dr. William H. Good believed that the foundation of the drug habit in many instances is its administration in a medicinal way. In the treatment of acute alcoholism he has secured good results by the use of apomorphia.

Dr. H. Brooker Mills felt that the acute alcoholics could not be absolutely classed among the degenerates, and believed that the degenerate condition was due not to the alcohol alone, but also to the methods of life, etc., which the patient was pursuing. He stated that he had secured good results from a mixture which he had found in use in St. Joseph's Hospital, consisting of tincture of nux vomica, 10 drops; tincture strophanthus, 5 drops; bromide, 10 grains, and a mild bitter tonic. He stated that he had under his care at the present time, a patient who claimed to have been using nine grains of morphine daily, who is suffering intensely from insomnia, and in whom the bromides and other drugs had no effect. He also referred to a case under his care who is working in the bichloride room at Mulford's with similar symptoms to those related by Dr. Hammond.

Dr. A. M. Eaton emphasized the necessity of keeping a careful watchout for these drugs, and felt that many patients whom their physicians viewed as moderate users of alcoholics, etc., were really using them to great excess, citing two cases illustrative of this point, one of which had stated that he was only a moderate drinker, yet inquiry revealed that he drank forty glasses of beer a day.

Dr. Harry Löwenburg referred to the case of a patient, forty years of age, who when the morphine was withdrawn exhibited intense symptoms, but under the influence of large doses of cannabis indica and monobromated camphor, and under rest, massage, and forced feeding was entirely free from the drug for weeks, when she was taken from the hospital and afterward relapsed and is now confined in a sanitarium.

Dr. Luther C. Peter, in closing, referred to the fact that the drug and alcohol affect the weakest muscles first, as evidenced by the toe drop in alcoholic and by the wrist drop in lead poisoning. He felt the line of demarcation between the mental capacity and mental disability of these patients was an exceedingly fine one.

Dr. Buckley, in closing, referred to the fact that accompanying the nervous lesions in the alcoholic patient, there were usually cardiovascular changes.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Regular Meeting, held February 20, 1905.

The Cure of Uterine Cancer.—Dr. John G. Clark, of Philadelphia, reviewed the recent literature on this subject drawing conclusions as to operative treatment from the statistical studies which had been published. Radical and complete operation had aroused, Dr. Clark said, bright hopes as to the solution of the problem of the treatment of cervical carcinoma. The ultimate results had, however, been disappointing and led the speaker to take a pessimistic view as to the value of the complete operation. Up to the time of the publication by Dr. Clark of a review of the experience of the Johns Hopkins

Hospital with uterine cancer, vaginal hysterectomy had been the operation done there; and the results of a series of 48 cases, though as good as in any hospital were distressingly bad. It was then suggested that the uterus ought to be treated as the breast was and an attempt was made to adapt the Halsted procedure for breast and axilla to the uterus and pelvis. Experience with this operation had, however, not given the results hoped for and Dr. Clark did not think that complete dissection of the pelvis offered much for the future. Absolutely complete removal of all the glands was impossible; the prognosis might still be bad even if all the glands were removed; a large proportion of patients are quite inoperable when seen at the clinic; and death has usually been from local recurrence. These facts do not warrant one in expecting results in uterine cancer similar to those which have been obtained in breast cancer. The composite experience of various operators has also offered nothing to show that the complete operation accomplishes enough to offset its very much greater primary mortality. Reese, among the early writers, thought metastasis an early phenomenon and advocated complete glandular removal. Cullen and others said that metastasis to the glands did not take place early; but Wertheim studying serial section found the glands involved in 31.7 per cent. of all cases and claimed that many metastases had been overlooked by others. Schauta, who advocates radical removal of the growth and not a prolonged search for metastases, divides the pelvic glands into six groups—the sacral, the iliac, the aortic, the celiac and the deep and superficial inguinal. Groups 1 and 2 are operable; groups 3 and 4 inoperable; while groups 5 and 6 did not usually enter into the question. Schauta reported 60 cases with 11 deaths, the prognosis varying notably with the site of the glandular metastases. He found also that the extent of the disease was no criterion at all of the extent of the metastasis; and that the size of glands was of no clinical value in deciding on whether or not they were involved. No one has yet explained why some early uterine carcinomata metastasize while other late ones do not; nor why certain glands may be skipped by the metastasis; nor why large glands may be free from cancer while small neighboring ones are involved. It is probable that not the gland alone but all the lymph vessels, veins and surrounding tissues offer routes for the growth. Kundrat has shown that the growth may take place in several ways: First, by mass growth from the cervix, usually circumscribed, but in some cases with finger processes; second, association of circumscribed growth with metastases; and third, combinations of 1 and 2. Wertheim, in his 1901 report, said that unless the glands were enlarged they need not be removed. This is now known to be incorrect, but removal of glands, at any rate, is of prognostic and not of curative value. Dr. Clark's own opinion is that more is lost than gained by an attempt at complete glandular removal—a prolonged procedure with high mortality. While he thought the complete operation ought to be given a good trial by careful and competent men he did not expect much from it and personally never did the complete operation—removing all the growth and as much neighboring tissue as possible by means of the cautery (abdominal incision) but making no attempt to get out the glands. Olshausen, who uses vaginal hysterectomy, has reported a series of over 600 cases, 31 per cent. of which were operable and 18 per cent.

well after five years. As to the future, something might be hoped for from the work being done to develop treatment other than surgical. From the operative standpoint the outlook was not bright. It was absolutely necessary to have the diagnosis made early—when the cases could be saved by surgery—and physicians and laity should be educated (as they have been in Germany by the efforts of Winter) to watch all symptoms at the time of the menopause and always to report promptly uterine hemorrhage.

Pathology of Cervical Cancer.—Dr. Sampson reviewed the pathology of this condition as illustrated by the cases seen at the Johns Hopkins Hospital. In the cervix cancer is more frequent than in the fundus, spreads more rapidly, is attended by a higher mortality and a lower percentage of cures. It is the most frequent form of primary cancer, is a disease of mid-life and is frequent in those who have borne children. It thus takes away valuable members of society when they can least afford to be missed. At present very little is being done by way of surgical cure. Seventy-five per cent. of the cases that come to the clinics are inoperable; recurrence occurs in three-fourths of the cases operated upon; and in practically 93 per cent. of all cases there is simply no cure. Early diagnosis and complete removal of the growth—but not of the glands which are, when removed, of prognostic value only—offer the only hope of cure, the cases being curable early and operability increasing the earlier the disease is seen. Sixteen of the Hopkins cases are living five years after the operation and four, ten years after. Dr. Cullen said that he used Wertheim's operation and did not dissect out the glands. Dr. Bloodgood said that the problem in uterine cancer was like the problem in cancer elsewhere; and that an extensive local operation should always be done. In the stomach complete glandular removal was attended by so great a mortality and the chance of recurrence was so great as not to justify the operation. In the breast the problem was simpler. There was practically no mortality from the operation; and, in the Hopkins cases over 45 per cent. have remained cured for three years. In the tip glands were easy to remove. The tumor was usually noticed early and the mortality of the operation was small.

BOOK REVIEWS.

A TEXT BOOK OF LEGAL MEDICINE. By FRANK W. DRAPER, A.M., M.D. Professor of Legal Medicine in Harvard University. W. B. Saunders & Company, Philadelphia, New York and London.

DR. DRAPER has written a very excellent book. In no important particular does it differ from similar works of American and English manufacture, save in that it is up to date, and for the most part reliable. Most works of this kind are filled up with detailed descriptions of tests for detecting various poisons. The author has here dealt with the subject in one chapter and very adequately. The chapter on the medicolegal relations of the human blood is admirably handled. In his chapter on death by electricity, however, he incorrectly states that no microscopic changes have been found in the tissues of the brain in electrocuted bodies. The large recent text-book on Legal Medicine and Toxicology, by Peterson and Haines, published by the same firm, shows, in the article on electricity and lightning, a number of interesting changes in the medulla. The author neglects also to discuss the question of the physiological action of electric currents on the cardiac contractions. He

takes great pains to point out the interpretation of the arborescent markings on the skin, assuming that authors who have discussed it hitherto have done so with the idea that they were due to the shape of a tree, under which the afflicted might have been standing. Such an extended explanation was unnecessary, as the interpretation alluded to is practically only a remnant of antique ideas.

The book will undoubtedly be found a very practical condensed manual.

MENTAL DEFECTIVES. By MARTIN W. BARR, M.D. P. Blakiston's Son & Co., Philadelphia.

SINCE the classical work of Ireland we have had very little in English dealing with idiocy, imbecility and kindred defective classes. The work of Dr. Barr will come not only with the authority of a long institutional experience devoted to this class of work, but with that of a sympathetic and gifted observer who has made more than a custodial establishment of the institution committed to his care. The illustrative features of the book are particularly commendable, as are also the author's remarks on what can be done for this class of patients. The bibliography is particularly rich in suggestive titles.

THE ART OF COMPOUNDING. By WILBUR L. SCOVILLE, Ph.G. P. Blakiston's Son & Co., Philadelphia.

DR. SCOVILLE's book has now reached this third edition. It is the best work we have dealing with this subject-matter, and little need be said regarding it at this time, save that every student of medicine should know more than something of the matters treated in this volume, and would be the better fitted for his life work if he had thoroughly studied and digested it.

CRANIOMUSCULAR ORIGINS OF BRAIN AND MIND. By PHILIP H. EBBES. Promethean Publisher, Chicago.

"PERSONS having a long occipital base, though exhibiting strong tenacity of life, are, nevertheless, very perceptive of organic sensations, as these are involved in emotion." This quotation, taken at random, illustrates in general a point of view adopted by the author. It must not be inferred, however, that this work deals with crude phrenology. It is a much more refined discussion of the general facts associated with what Darwin has termed expression of emotion in man and the animal.

The book deals with the emotions, the general phrenological relations of the cerebrum with the intellect as prehensive and constructive, and sums up the discussion of what the author is pleased to call evolutionary elements.

We think that in general the book is very far from being convincing. The author has evidently dipped into scientific phrenology, but has not rid himself of a belief in the value of high-sounding terms, nor of the idea that the brain is divided up into social, preservative, prehensive, and constructive zones to which location can be given on a diagram.

BOOKS RECEIVED.

GUY'S HOSPITAL REPORTS. Volume LIX. 8vo, 420 pages. Illustrated. J. A. Churchill, London.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY. 37th Annual Meeting. 8vo, 544 pages. Illustrated.

THE PRACTICE OF MEDICINE. By Dr. H. A. HARE. 8vo, 1110 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

THYROID AND PARATHYROID GLANDS. By Dr. H. RICHARDSON. 8vo, 261 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.